



OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
FACILITIES DEVELOPMENT DIVISION

APPLICATION FOR OSHPD SPECIAL SEISMIC
CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY

APPLICATION #: OSP – 0543 – 10

OSHPD Special Seismic Certification Preapproval (OSP)

Type: ☒ New ☐ Renewal

Manufacturer Information

Manufacturer: Kohler Power Systems

Manufacturer's Technical Representative: Andy Miller

Mailing Address: 444 Highland Drive, Kohler, WI 53044

Telephone: (920) 457-4441

Email: andrew.miller@kohler.com

Product Information

Product Name: Kohler Power Generators

Product Type: Diesel Electrical Power Generator

Product Model Number: 1250kW through 2000kW REOZMD

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

General Description: Rigid floor mounted diesel powered electrical generator above fuel tanks with or without enclosures and internal vibration isolators. Seismic enhancements made to test units and modifications required to address the anomalies observed during the tests shall be incorporated into the production units.

Mounting Description: Rigid Floor Mount and Externally Isolated

Applicant Information

Applicant Company Name: The VMC Group

Contact Person: John P. Giuliano, PE

Mailing Address: 113 Main Street, Bloomingdale, NJ 07403

Telephone: (973) 838-1780

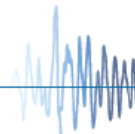
Email: john.giuliano@thvmcgroup.com

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: 5/16/18

Title: President Company Name: The VMC Group

"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: 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@thvmcgroup.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): OSP-0543-10
- BY: Timothy J. Piland

Testing Laboratory

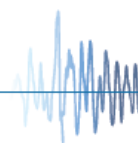
Company Name: Construction Engineering Research Laboratory

Contact Name: James Wilcoski

Mailing Address: 2902 Newmark Drive, Champaign, IL 61822

Telephone: (217) 352-6511 Email: james.wilcoski@usace.army.mil

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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) = 1.45

S_{DS} (Design spectral response acceleration at short period, g) = 1.93

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

R_p (Equipment or component response modification factor) = 2.0

Ω_0 (System overstrength factor) = 2

I_p (Importance factor) = 1.5

z/h (Height factor ratio) = 0

Equipment or Component Natural Frequencies (Hz) = See Attachments

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

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) = BY: Timothy J. Piland

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): _____

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

Signature: Timothy J. Piland Date: July 20, 2018

Print Name: Timothy J. Piland Title: SSE

Special Seismic Certification Valid Up to : S_{DS} (g) = 1.93 z/h = 0

Condition of Approval (if applicable): _____

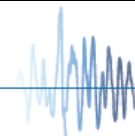


Table 1 - Product Line Matrix

Model	Max. Rating [kW]	Configuration	Max. Package Dimensions [in]			Max. Weight [lbs]	Installation Method	UUT
			Max Length [in]	Max Width [in]	Max Height [in]			
1250REOZMD	1280	Open	250.0	88.0	98.0	26,500	Isolated	Extrapolated
		Enclosed on Tank	584.0	108.0	214.0	103,400	Rigid	UUT-01
1600REOZMD	1600	Open	267.0	88.0	102.0	31,600	Isolated	Interpolated
		Enclosed on Tank	589.0	114.0	207.0	103,400	Rigid	
1750REOZMD	1780	Open	269.0	109.0	122.0	36,000	Isolated	
		Enclosed on Tank	589.0	126.0	207.0	103,400	Rigid	
2000REOZMD	2000	Open	268.0	109.0	122.0	38,000	Isolated	UUT-02
		Enclosed on Tank	511.0	124.0	157.0	62,330	Rigid	UUT-03

Notes

- 1) Max. Dimensions and Max. Weight includes the largest and heaviest options of all the subcomponents.
- 2) Max. Weight for enclosed on tank gensets includes tank fully filled with fuel.

Table 2 - Certified Subcomponents: Enclosure Matrix

Model	Enclosure			Max Weight ³ [lbs]	Manufacturer	UUT
	Material	Description	Part No.			
REOZMD	Aluminum	Weather enclosure, 40°C & 50°C Cooling Package	GM72613-TPG	2550	Global Power Components	Extrapolated
		Weather enclosure, 40°C & 50°C Cooling Package	GM72616-TPG	2800		
		Weather enclosure, 40°C Cooling Package	GM72617-TPG	2950		
		Weather enclosure, 40°C & 50°C Cooling Package	GM72637-TPG	3120		
		Weather enclosure, 50°C Cooling Package	GM72618-TPG	3275		
		Weather enclosure, 40°C & 50°C Cooling Package	GM72640-TPG	3495		
		Weather enclosure, 40°C Cooling Package	GM72641-TPG	3710		
		SL1 enclosure, 40°C & 50°C Cooling Package	GM72621-TPG	3850		
		Weather enclosure, 50°C Cooling Package	GM72642-TPG	4485		
		SL1 enclosure, 40°C & 50°C Cooling Package	GM72624-TPG	4700		
		SL1 enclosure, 40°C Cooling Package	GM72625-TPG	4825		
		SL2 enclosure, 40°C Cooling Package	GM72633-TPG	4825		
		SL1 enclosure, 40°C & 50°C Cooling Package	GM72648-TPG	5070		
		SL1 enclosure, 40°C & 50°C Cooling Package	GM72645-TPG	5345		
		SL2 enclosure, 40°C & 50°C Cooling Package	GM72632-TPG	5400		
		SL2 enclosure, 40°C & 50°C Cooling Package	GM72653-TPG	5490		
		SL1 enclosure, 50°C Cooling Package	GM72626-TPG	5575		
		SL2 enclosure, 40°C & 50°C Cooling Package	GM72656-TPG	5680		
		SL2 enclosure, 40°C & 50°C Cooling Package	GM72629-TPG	5850		UUT-01
		SL1 enclosure, 50°C Cooling Package	GM72650-TPG	5960		Interpolated
		SL2 enclosure, 40°C Cooling Package	GM72657-TPG	6250		
		SL2 enclosure, 50°C Cooling Package	GM72634-TPG	6375		
		SL1 enclosure, 40°C Cooling Package	GM72649-TPG	6510		UUT-03
		SL2 enclosure, Internal Silencer, 50°C Cooling Package	GM72658-TPG	9375		

Notes

- 1) SL1: Sound Level 1. SL2: Sound Level 2.
- 2) Enclosure kits exclude silencers except for UUT-03 enclosure (GM72658-TPG).
- 3) Only UUT-03 enclosure weight include internal silencer weight. All other enclosures weights exclude silencers weights.

Table 3 - Certified Subcomponents: Tank Matrix

Model	kW Range	Usable Capacity (gallons)	Material	Max Weight [lbs]	Manufacturer	UUT
REOZMD	1250 kW - 2000 kW	1350	Carbon Steel	8535	Global Power Components	UUT -03
		1600		8760		Interpolated
		2100		9340		
		2600		10340		
		3130		12045		
		4150		13600		
		5150		12800		
		6160		13950		
		7700		16810		UUT -01

Table 4 - Certified Subcomponents: Engine Matrix

Model	Part No.	Material	Max Weight [lbs]	Manufacturer	UUT
REOZMD	S12R-Y2PTAW-1	Carbon Steel	11620	Mitsubishi	UUT-01
	S16R-Y2PTAW-1		14399		Interpolated
	S16R-Y2PTAW2-1		14729		
	S16R-Y2PTAW2-1		14729		UUT-02, UUT-03

Table 5 - Certified Subcomponents: Alternator Matrix

Model	Part Number	Material	Max Weight [lbs]	Manufacturer	UUT
REOZMD	7M4046	Carbon Steel	5950	Marathon	Extrapolated
	7M4048		6300		
	7M4366-3300/4160v		6900		
	7M4050		7230		
	7M4368-3300/4160v		7500		
	7M4368-33/4160v		7500		
	7M4052		7800		UUT-01
	7M4370-3300/4160v		8200		Interpolated
	7M4054		8600		
	7M4374-3300-4160v		9300		
	7M4056		9740		
	7M4058		9740		UUT-02, UUT-03

Table 6 - Certified Subcomponents: Radiator Matrix

Model	Part Number	Max Weight [lbs]	Manufacturer	UUT
REOZMD	YT427819 (40°C Package)	2860	Young Touchstone	Extrapolated
	YT427820 (50°C Package)	2950		UUT-01
	YT427808 (40°C Package)	3050		Interpolated
	YT427809 (50°C Package)	3260		
	YT427810 (50°C Package)	3425		
	YT4277811 (50°C Package)	4000		UUT-02, UUT-03

Table 7 - Certified Subcomponents: Fuel Cooler Matrix

Model	Part Number	Max Weight [lbs]	Manufacturer	UUT
REOZMD	MOC8M	70	Young Touchstone	UUT-01, UUT-02, UUT-03

Table 8 - Certified Subcomponents: Skid Matrix

Model	Part Number	Material	Max Weight [lbs]	Manufacturer	UUT
REOZMD	GM80614	Carbon Steel	4822	KOHLER	Extrapolated
	GM80615		4822		UUT-01
	GM80616		4973		
	GM80620		5133		Interpolated
	GM80623		5180		
	GM79125		5289		UUT-02, UUT-03

Table 9 - Certified Subcomponents: Controller Matrix

Model	Model/Part Number	Max Weight	Manufacturer	UUT
REOZMD	DECISION MAKER 6000/ GM78092-2	<10lbs	KOHLER	UUT-01
	DECISION MAKER 550/ GM76122-2	<10lbs	KOHLER	UUT-02, UUT-03



UNIT UNDER TEST (UUT) SUMMARY SHEET

UUT-01

30383-1701, UUT 17

Model Line	Model Number	Manufacturer
REOZM	1250REOZMD	Kohler

Product Construction Summary

Enclosed diesel powered electrical generator set 1250 kW on tank

Options / Subcomponent Summary

Enclosure: Global Power Components, Fuel Tank: Global Power Components, Engine: Mitsubishi, Alternator: Marathon, Radiator: Young Touchstone, Controller: Kohler, Skid: Kohler, Fuel Cooler: Young Touchstone

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
103,400	584	108	214	2.5	2.5	5.5

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 2016	ICC-ES AC156	1.93	0.00	1.50	1.93	0.77	1.29	0.52

Test Mounting Details

Genset is internally isolated to tank using (10) M2SSH-1E Seismic Spring Mounts Provided by The VMC Group. The Mounts are Attached to the Tank Using (4) 3/4" Diameter ASTM A490 Bolts per Mount. Tank is attached to test Fixture with (22) 7/8" ASTM A490 Bolts.



All units were filled with contents and maintained structural integrity and functionality after AC156 test.



UNIT UNDER TEST (UUT) SUMMARY SHEET

UUT-02

PEER-STI/2011-15, UUT 1

Model Line	Model Number	Manufacturer
REOZM	2000REOZMD	Kohler

Product Construction Summary

Open diesel powered electrical generator set 2000 kW off tank

Options / Subcomponent Summary

Enclosure: N/A, Fuel Tank: N/A, Engine: Mitsubishi, Alternator: Marathon, Radiator: Young Touchstone, Controller: Kohler, Skid: Kohler, Fuel Cooler: Young Touchstone

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
38,000	268	109	122	3.0	3.4	4.4

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 2016	ICC-ES AC156	1.93	0.00	1.50	1.93	0.77	1.29	0.52

Test Mounting Details

Skid is attached to (12) M2SSH-1E Seismic Spring Mounts Provided by The VMC Group. The Mounts are Attached to the Fixture Using (4) 3/4" ASTM A490 Bolts per Mount.



All units were filled with contents and maintained structural integrity and functionality after AC156 test.



UNIT UNDER TEST (UUT) SUMMARY SHEET

UUT-03

PEER-STI/2011-15, UUT 3

Model Line	Model Number	Manufacturer
REOZM	2000REOZMD	Kohler

Product Construction Summary

Enclosed diesel powered electrical generator set 2000 kW on tank

Options / Subcomponent Summary

Enclosure: Global Power Components, Fuel Tank: Global Power Components, Engine: Mitsubishi, Alternator: Marathon, Radiator: Young Touchstone, Controller: Kohler, Skid: Kohler, Fuel Cooler: Young Touchstone, Internal Silencer: Global Power Components

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
62,330	511	124	157	2.7	2.2	2.4

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 2016	ICC-ES AC156	1.93	0.00	1.50	1.93	0.77	1.29	0.52

Test Mounting Details

Genset is internally isolated to tank using (12) M2SSH-1E Seismic Spring Mounts Provided by The VMC Group. The Mounts are Attached to the Tank Using (4) 3/4" Diameter ASTM A490 Bolts per Mount. Tank is attached to test Fixture with (26) 3/4" ASTM A490 Bolts.



All units were filled with contents and maintained structural integrity and functionality after AC156 test.