APPLICATION FOR OSHPD SPECIAL SEISMIC CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY	
APPLICATION #:	OSP – 0464-10

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: andy.miller@kohler.com

Product Information

Product Name: Kohler Power Generators

Product Type: Electrical Power Generators

Product Model Number: 15kW-60kW REOZK
(List all unique product identification numbers and/or part numbers)

General Description: Diesel Powered Electrical Generators. Seismic enhancement 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 Floor Mounted Generators with internal isolation On or Off UL142 Fuel Tanks.

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, 2016.

Signature of Applicant: Date: 3/3/16

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 St, 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

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

Seismic Parameters

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

Design Basis of Equipment or Components (F_p/W_p) = 4.50(S_{DS} = 2.0, z/h = 1); 1.875 (S_{DS} = 2.5, 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

R_p (Equipment or component response modification factor) = 2.0

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, 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: Date: 7/27/16

Print Name: M. R. Karim Title: SHFR

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

Condition of Approval (if applicable):

Table 1 - Certified Open & Enclosed Generators On Tanks (Rigid Mounting)

Model	Max Rating (kW)	Configuration	EPA Rating	Dimensional Data						z/h = 0.0 S_{DS}	z/h = 1.0 S_{DS}	Tested / Interpolated / Extrapolated
				Max Length (in)	Max Width (in)	Max Height (in)	Max Weight with Empty Tank (lbs)	Max Available Tank Capacity	Max Weight with Full Tank (lbs)			
15REOZK	15	Open	Tier 3	101.4	34.7"	66.7"	1,985	87	2,711	2.50	2.0	Extrapolated
		Enclosed	Tier 3	101.4	34.7"	75.3"	2,120	87	3,091	2.50	2.0	UUT-01
20REOZK	20	Open	Tier 3	101.4	34.7"	72.7"	2,245	221	4,088	2.50	2.0	Interpolated
		Enclosed	Tier 3	101.4	34.7"	81.3"	2,625	221	4,468	2.50	2.0	Interpolated
30REOZK	30	Open	Tier 3	101.4	34.7"	76.3	2,549	279	4,876	2.50	2.0	Interpolated
		Enclosed	Tier 3	101.4	34.7"	84.0	2,939	279	5,266	2.50	2.0	Interpolated
40REOZK	40	Open	Tier 3	114.0	42.1	80.5	3,891	401	7,235	2.50	2.0	Interpolated
		Enclosed	Tier 3	114.0	42.1	93.7	4,491	401	7,835	2.50	2.0	Interpolated
50REOZK	50	Open	Tier 3	158.3	42.1	80.5	3,925	535	8,387	2.50	2.0	Interpolated
		Enclosed	Tier 3	158.3	42.1	93.7	4,525	535	8,987	2.50	2.0	Interpolated
60REOZK	60	Open	Tier 3	158.3	42.1	80.5	4,011	535	8,473	2.50	2.0	Interpolated
		Enclosed	Tier 3	158.3	42.1	93.7	4,520	535	9,073	2.50	2.0	UUT-02

Notes

1) Designated generator sets are certified both on and off fuel tanks.

Table 2 - Certified Enclosures

Series	kW Range	Kohler Manufactured Enclosures [2]		Internal Silencer		
		Type	Kohler Part Number	MFR	Kohler Part Number	
REOZKx	**15**-30	Carbon Steel Weather, CA AQMD	GM88335-KA7	N/A	N/A	Extrapolated
		Carbon Steel Sound, CA AQMD	GM88335-KA8			Extrapolated
		Aluminum Sound, CA AQMD	GM88335-KA9			Extrapolated
		Carbon Steel Weather, CA AQMD, SS Hinges/Latches	GM88335-KA10			Extrapolated
		Carbon Steel Sound, CA AQMD, SS Hinges/Latches	GM88335-KA11			Extrapolated
		Aluminum Sound, CA AQMD, SS Hinges/Latches	GM88335-KA12			Extrapolated
		Carbon Steel Weather	GM88335-KA1	Nelson Global Products	GM92142	UUT-01
		Carbon Steel Sound	GM88335-KA2			Interpolated
		Aluminum Sound	GM88335-KA5			Interpolated
		Carbon Steel Weather, SS Hinges/Latches	GM88335-KA3			Interpolated
		Carbon Steel Sound, SS Hinges/Latches	GM88335-KA4			Interpolated
		Aluminum Sound , SS Hinges/Latches	GM88335-KA6			Interpolated
		Carbon Steel Weather, CA AQMD	GM88335-KA19	N/A	N/A	Interpolated
		Carbon Steel Sound, CA AQMD	GM88335-KA20			Interpolated
		Aluminum Sound, CA AQMD	GM88335-KA21			Interpolated
		Carbon Steel Weather, CA AQMD, SS Hinges/Latches	GM88335-KA22			Interpolated
		Carbon Steel Sound, CA AQMD, SS Hinges/Latches	GM88335-KA23			Interpolated
		Aluminum Sound, CA AQMD, SS Hinges/Latches	GM88335-KA24			Interpolated
		Carbon Steel Weather	GM88335-KA13	Nelson Global Products	GM92142	Interpolated
		Carbon Steel Sound	GM88335-KA14			Interpolated
		Carbon Steel Weather, SS Hinges/Latches	GM88335-KA15			Interpolated
		Carbon Steel Sound, SS Hinges/Latches	GM88335-KA16			Interpolated
		Aluminum Sound	GM88335-KA17			Interpolated
		Aluminum Sound , SS Hinges/Latches	GM88335-KA18			Interpolated
	40-**60**	Carbon Steel Weather, CA AQMD	GM89762-KA8	N/A	N/A	Interpolated
		Carbon Steel Sound, CA AQMD	GM89762-KA7			Interpolated
		Aluminum Sound, CA AQMD	GM89762-KA9			Interpolated
		Carbon Steel Weather, CA AQMD, SS Hinges/Latches	GM89762-KA11			Interpolated
		Carbon Steel Sound, CA AQMD, SS Hinges/Latches	GM89762-KA10			Interpolated
		Aluminum Sound, CA AQMD, SS Hinges/Latches	GM89762-KA12			Interpolated
		Carbon Steel Weather	GM89762-KA1	Nelson Global Products	GM89765	Interpolated
		Carbon Steel Sound	GM89762-KA2			Interpolated
		Aluminum Sound	GM89762-KA5			Interpolated
		Carbon Steel Weather, SS Hinges/Latches	GM89762-KA4			Interpolated
		Carbon Steel Sound, SS Hinges/Latches	GM89762-KA3			Interpolated
		Aluminum Sound, SS Hinges/Latches	GM89762-KA6			UUT-02

Notes

2) Enclosures Are Certified For Use With or Without Internal Silencers

Table 3 - Certified Subcomponents

Component (MFR)	Kohler Part Number	Notes	Tested / Interpolated / Extrapolated
UL-142 Tanks (Kohler)	GM89058-1	87 Gallons	UUT-01
	GM89058-2	126 Gallons	Interpolated
	GM93355-1	142 Gallons	Interpolated
	GM74926-2	147 Gallons	Interpolated
	GM89058-3	168 Gallons	Interpolated
	GM69240-1	215 Gallons	Interpolated
	GM89058-4	221 Gallons	Interpolated
	GM93355-2	237 Gallons	Interpolated
	GM74926-3	253 Gallons	Interpolated
	GM89058-5	279 Gallons	Interpolated
	GM93355-3	279 Gallons	Interpolated
	GM70816-1	316 Gallons	Interpolated
	GM74926-4	372 Gallons	Interpolated
	GM93355-4	401 Gallons	Interpolated
	GM85993-1	404 Gallons	Interpolated
	GM69240-2	415 Gallons	Interpolated
	GM71640-1	416 Gallons	Interpolated
	GM85993-2	468 Gallons	Interpolated
	GM93355-5	535 Gallons	UUT-02
Engines (Kohler Diesel)	KDI1903M	15 kW	UUT-01
	KDI2504M	20 kW	Interpolated
	KDI2504TM	30 kW	Interpolated
	KD13404TCR	40-60kW	Interpolated
	KDI3404TM	40-60 kW	UUT-02
Block Heater (Kim Hotstart)	A-7825-OS		UUT-01
	KHTPS10GT6-XXX		UUT-02
Alternators (Kohler)	4D / 4E /4P	15-30kW	UUT-01
	4P	40-60kW	UUT-02
Radiators (JB Radiator)	RS-5851	15-30 kW	UUT-01
	RS-7748	40-60 kW	UUT-02
Controllers (Kohler)	DEC550		UUT- 02
	DEC3000		UUT-01
Breakers (Square D)	H-FRAME	150 A Max	UUT-01, UUT-02
	J-FRAME	400 A Max	UUT-01, UUT-02

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-1

VMA-50224-01

Model Line	Model Number	Manufacturer
REOZKx	15REOZK	Kohler

Product Construction Summary

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

Options / Subcomponent Summary

Engine: Kohler ; Alternator: Kohler ; Radiator: JB Radiator ; Controller: Kohler

UUT Properties

Weight (with empty tank) [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
2,120	101.4	34.7	78.3	4.9	6.1	12.7

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2016	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	1.34	0.54
		2.5	0.0	1.5	2.5	1	1.68	0.68

Test Mounting Details

Fuel Tank is mounted directly to the fixture using Qty (4) 3/4 diameter ASTM A490 Bolts

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

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-2

VMA-50224-01

Model Line	Model Number	Manufacturer
REOZKx	60REOZK	Kohler

Product Construction Summary

Carbon Steel Fuel Tank, Carbon Steel Skid, Aluminum Enclosure

Options / Subcomponent Summary

Engine: Kohler ; Alternator: Kohler ; Radiator: JB Radiator ; Controller: Kohler

UUT Properties

Weight (with empty tank) [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
4,520	158.3	42.1	93.7	6.1	7.0	10.1

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2016	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	1.34	0.54
		2.5	0.0	1.5	2.5	1	1.68	0.68

Test Mounting Details

Fuel Tank is mounted directly to the fixture using Qty (8) 7/8 diameter ASTM A490 Bolts

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