Facilities Development Division www.oshpd.ca.gov/fdd
400 R Street. Suite 200, Sacramento, California 95811-6213 Phone (916) 440-8300 Fax (916) 654-2973

APPLICATION FOR PREAPPROVAL

SPECIAL SEISMIC CERTIFICATION OF EQUIPMENT AND COMPONENTS

For Office Use Only

APPLICATION NO.

OSP–0099-10

Check whether application is: NEW [X] RENEWAL [ ]

1.0

Eaton Corporation	Eddie Wilkie
Manufacturer	*Manufacturer's Technical Representative*
1000 Cherrington Parkway Moon Township PA, 15108	175 Vista Blvd., Arden, NC 28704
Mailing Address	
Office: 828-651-0707	eddiewilkie@eaton.com
Telephone	*E-mail Address*

2.0

SC *9000* MV Drive	Medium Voltage Adjustable Frequency Drive
Product Name	*Product Type*

Custom Product, order specific numbers

Product model No (List all unique product identification numbers and/or serial numbers)

General Description: *MV Adjustable Frequency Drive; 2400/3300/4160Vac, 300-3000 HP, Floor Mounted – Free Standing; Front Access only; Three-Phase, Primary 2.4 to15-kV; 50-60Hz; Multiple Sections; Carbon Steel NEMA 1 Enclosures; Open Core Coil Transformers with Copper Windings; Copper Bussing; With and without output filters.*

3.0

Eaton Corporation	Eddie Wilkie
Applicant Company Name	*Contact Person*
1000 Cherrington Parkway Moon Township PA, 15108	175 Vista Blvd., Arden, NC 28704
Mailing Address	
Office: 828-651-0707	Eddiewilkie@eaton.com
Telephone	*E-mail Address*

I hereby agree to reimburse the Office of Statewide Health Planning and Development for the actual costs incurred by the department for review.

Eddie Wilkie	April 19, 2011
Signature of Applicant	*Date*
Specialist - Application Engineering	Eaton Corporation
Title	*Company Name*

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Registered Design Professional Preparing the Report

4.0

William Merkel Associates
Company Name

William Merkel	SE1993
Contact Name	*California License Number*

2804 Fulton Avenue
Sacramento, CA 95821
Mailing Address

(916) 481-1962	*wmase@pacbell.net*
Telephone	*E-mail Address*

California Licensed Structural Engineer Review and Acceptance of the Report

5.0

William Merkel Associates
Company Name

William Merkel	SE1993
Contact Name	*California License Number*

2804 Fulton Avenue
Sacramento, CA 95821
Mailing Address

(916) 481-1962	*wmase@pacbell.net*
Telephone	*E-mail Address*

Anchorage Pre-Approval

6.0

☐ *Anchorage is pre-approved under OPA-*
(Separate application for anchorage pre-approval is required)

☒ Anchorage is not Pre-approved

Certification Method

70. ☒ *Testing in accordance with:* ☐ *ICC-ES AC-156* ☒ *Other (Please Specify):*

Legacy test reports verified for conformance with legacy ICC-ES AC 156.

☐ *Analysis*

☐ *Experience data*

☐ *Combination of Testing, Analysis, and/or Experience Data (Please Specify):*

Testing Laboratory (if applicable)

8.0

Wyle Laboratories	Don Smith
Company Name	*Contact Name*

7800 Highway 20 West
Huntsville, AL 35806
Mailing Address

(256) 716-4445	Don.Smith@Wyle.com
Telephone	E-mail:

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Approval Parameters

9.0

Design in accordance with ASCE 7-05 Chapter 13: ☒ Yes ☐ No

Design Basis of Equipment or Components (F_p/W_p) = 0.80g
S_{DS} (Spectral response acceleration at short period) = 1.06g
a_p (In-structure equipment or component amplification factor) =2.5

R_p (Equipment or component response modification factor) = 6.0

I_p (Importance factor) = 1.5

z/h (Height factor ratio)= 1

Equipment or Component fundamental period(s) = See Attachments
Building period limits (if any) = n/a
Overall dimensions and weight (or range thereof) = See Attachments

Equipment or Components @ grade designed in accordance with ASCE 7-05 Chapter 15: ☐ Yes ☒ No

Design Basis of Equipment or Components (V/W) =

S_{DS} (Spectral response acceleration at short period) =

S_1 (Spectral response acceleration at 1 second period) =

R (Response modification coefficient)=1.0

Ω_0 (System overstrength factor) =1.0

C_d (Deflection amplification factor) =1.0

I_p (Importance factor) =1.5

Height to Center of Gravity above base =

Equipment or Component fundamental period(s) = Sec

Overall dimensions and weight (or range thereof) =

Tank(s) designed in accordance with ASME BPVC, 2007: ☐ Yes ☒ No

10.0 ***List of attachments supporting the special seismic certification of equipment or components:***

☒ *Test Report* ☐ *Drawings* ☐ *Manufacturer's Catalog*
☐ *Calculations* ☐ *Others (Please Specify):*

11.0 ***OSHPD Approval*** *(For Office Use Only)*

5/10/2011	**December 31, 2016**
Signature & Date	*Approval Expiration Date*
M. R. Karim, SHFR	S_{DS} (g) = **1.06** z/h = **1.0**
Name & Title	*Special Seismic Certification Valid Up to*

Condition of Approval (if any):

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EATON
Powering Business Worldwide

Attachment #3
Seismic Certification
SC 9000 MV Drive Product Matrix

Product	Product Numbering	Max Horsepower @ 4160V	Frame	Dimensions			Weight (lbs.)	Notes	Comments
				Width (in.)	Depth (in.)	Height (in.)			
SC 9000 MV Drive	SC93C030-V-E	300	A	65	50	110.5*	6225	1,2,3,4,5,6,7	Interpolated
	SC93C035-V-E	350		65	50	110.5*	6225	1,2,3,4,5,6,7	Interpolated
	SC93C040-V-E	400		65	50	110.5*	6225	1,2,3,4,5,6,7	Interpolated
	SC93C045-V-E	450		65	50	110.5*	6225	1,2,3,4,5,6,7	Interpolated
	SC93C050-V-E	500		65	50	110.5*	6225	1,2,3,4,5,6,7	Interpolated
	SC93C060-V-E	600		65	50	110.5*	6225	1,2,3,4,5,6,7	Interpolated
	SC93C070-V-E	700		65	50	110.5*	6225	1,2,3,4,5,6,7	Interpolated
	SC93C080-V-E	800		65	50	110.5*	6225	1,2,3,4,5,6,7	Interpolated
	SC93C090-V-E	900		65	50	110.5*	8750	1,2,3,4,5,6,7	Tested 55906R08-11B, EUT #29
	SC93C100-V-E	1000	B	95	49	110.5*	8925	1,2,3,4,5,6,7	Interpolated
	SC93C125-V-E	1250		95	49	110.5*	8925	1,2,3,4,5,6,7	Interpolated
	SC93C150-V-E	1500		95	49	110.5*	8925	1,2,3,4,5,6,7	Interpolated
	SC93C175-V-E	1750		95	49	110.5*	8925	1,2,3,4,5,6,7	Interpolated
	SC93C200-V-E	2000		95	49	110.5*	8925	1,2,3,4,5,6,7	Interpolated
	SC93C225-V-E	2250	C	137	49	110.5*	15125	1,2,3,4,5,6,7	Interpolated
	SC93C250-V-E	2500		137	49	110.5*	15125	1,2,3,4,5,6,7	Interpolated
	SC93C275-V-E	2750		137	49	110.5*	15125	1,2,3,4,5,6,7	Interpolated
	SC93C300-V-E	3000		137	49	110.5*	16900	1,2,3,4,5,6,7	Tested 57717R10-1, EUT #1

1 NEMA Type 1 enclosure
2 Mild steel sheet metal construction
3 Rigid floor anchored, ~~3/4-10 Grade 5 bolts per manufacturers floor plan~~
4 Dimensions and weights include cooling fans, and ventilation packages
5 Fused Primary Switch
6 Open core and coil construction, Copper Windings
7 Major Components & Vendors - See separate attachment
* Includes Blower Height

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Powering Business Worldwide

Attachment #6
Major Component Data

	Transformer						
	Dimensions						
MVD Frame Size	Size (kVA)	Width (in.)	Depth (in.)	Height (in.)	Weight (lbs)	Vendor 1	Vendor 2
A	296	45	24	50	3000	Hammond	Eaton
A	344	45	24	50	3208	Hammond	Eaton
A	393	45	24	50	3330	Hammond	Eaton
A	441	45	24	50	3451	Hammond	Eaton
A	489	45	24	50	3575	Hammond	Eaton
A	586	45	24	50	3830	Hammond	Eaton
A	683	45	24	50	4092	Hammond	Eaton
A	780	45	24	50	4362	Hammond	Eaton
A	877	45	24	50	4639	Hammond	Eaton
B	586	59	26	50	3830	Hammond	Eaton
B	683	59	26	50	4092	Hammond	Eaton
B	780	59	26	50	4362	Hammond	Eaton
B	877	59	26	50	4639	Hammond	Eaton
B	974	59	26	50	4924	Hammond	Eaton
B	1216	59	26	50	5668	Hammond	Eaton
B	1458	59	26	50	6459	Hammond	Eaton
B	1700	59	26	50	7296	Hammond	Eaton
B	1948	59	26	50	8203	Hammond	Eaton
C	1216	59	27	60	5668	Hammond	Eaton
C	1458	59	27	60	6459	Hammond	Eaton
C	1700	59	27	60	7296	Hammond	Eaton
C	1948	59	27	60	8203	Hammond	Eaton
C	2190	59	27	60	9135	Hammond	Eaton
C	2432	59	27	60	9500	Hammond	Eaton
C	2608	59	27	60	9800	Hammond	Eaton

Incoming Isolating Switch (Non-Load break)					
	Dimensions				
Size (Amperes)	Width (in.)	Depth (in.)	Height (in.)	Weight (lbs.)	Vendor
400	20	15	12	40	Eaton

Fused Contactor (Load Break)					
	Dimensions				
Size (Amperes)	Width (in.)	Depth (in.)	Height (in.)	Weight (lbs.)	Vendor
400	18	21	19	115	Eaton

* Inverter					
	Dimensions				
Size (Amperes)	Width (in.)	Depth (in.)	Height (in.)	Weight (lbs.)	Vendor
112	27	35	69	1600	Eaton
372	23	42	69	2200	Eaton

* Frame A rectifier is mounted and included with the inverter assembly

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Eaton Corporation
Attachment #3
SC9000 MV Drive
Design Basis of Equipment Components

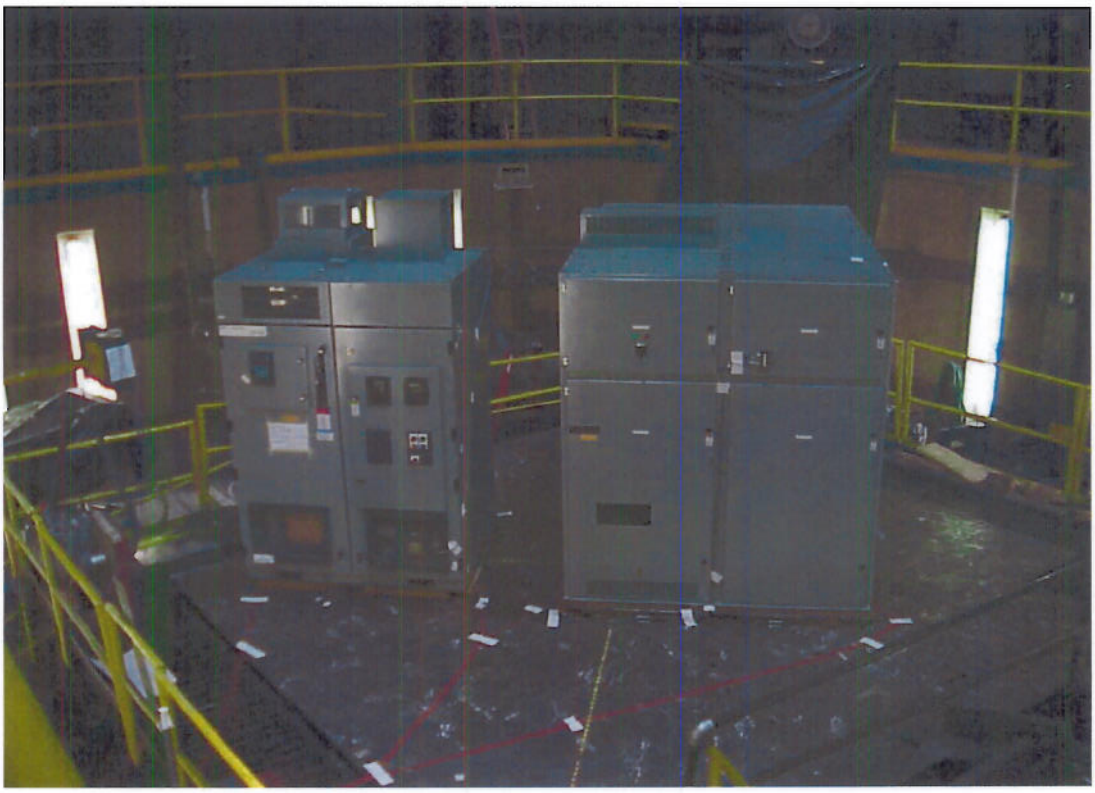
Report #	Product Name	Catalog Number	EUT Mounting	EUT Designation	Dimensions	Weight (lbs.)	S_{DS} (g)	F-B Resonance Frequency (Hz)	S-S Resonance Frequency (Hz)	V Resonance Frequency (Hz)	Building Period Limits
55906R08-11B	SC9000 MV Drive	SC93C090-V-E	Secured to Floor	29	65"Wx109"Hx50"D	8750	2.06	7.5	15	>33	None
57717R10-1	SC9000 MV Drive	SC93C300-V-E	Secured to Floor	1	137"Wx104"Hx49"D	16900	1.06	7	10	>33	None

Attachment #4
Unit Under Test (UUT)
Summary Sheet

Manufacturer: Eaton Corporation
Product Family: SC9000 MV Drive
Model Number: Frame A
Product Construction Summary:
NEMA 1 Enclosure, painted carbon steel. Open core-coil transformer, copper windings.
Assembly is attached to the foundation via (5) 3/4-10 Grade 5 bolts.
Major components include: Incoming disconnect & primary protective device, pulse transformer, rectifier, inverter

UUT Properties						
	Dimensions			Lowest Natural Frequency (Hz)		
Weight (lbs.)	Depth (in.)	Width (in.)	Height (in.)	Front-Back (Hz)	Side-Side (Hz)	Vertical (Hz)
8750	50	65	110.5	7.5	15	>33

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}
IBC 2009	ICC-ES AC 156	2.06	1	1.5	3.30	2.47	1.37	0.55



Attachment #5
Unit Under Test (UUT)
Summary Sheet

Manufacturer: Eaton Corporation
Product Family: SC9000 MV Drives
Model Number: Frame C
Product Construction Summary:
NEMA 1 Enclosure, painted carbon steel. Open core-coil transformer, copper windings.
Assembly is attached to the foundation via (10) 3/4-10 Grade 5 bolts.
Major components include: Incoming disconnect & primary protective device, pulse transformer, rectifier, inverter

UUT Properties						
	Dimensions			Lowest Natural Frequency (Hz)		
Weight (lbs.)	Depth (in.)	Width (in.)	Height (in.)	Front-Back (Hz)	Side-Side (Hz)	Vertical (Hz)
16900	49	137	110.5	7	10	>33

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}
IBC 2009	ICC-ES AC 156	1.06	1	1.5	1.70	1.27	0.71	0.28

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