

APPLICATION FOR OSHPD SPECIAL SEISMIC **CERTIFICATION PREAPPROVAL (OSP) APPLICATION #:** OSP - 0157-10 **OSHPD Special Seismic Certification Preapproval (OSP) Manufacturer Information** G&W Electric Manufacturer: Manufacturer's Technical Representative: Janet Ache Mailing Address: 3500 West 127th Street, Blue Island, IL 60406 Telephone: 708-297-3736 Email: jache@gwelec.com **Product Information** Product Name: SF6 Insulated Padmount & Vault Switchgear Product Type: Transmission & Distribution Power Products Product Model Number: See Attachment A (List all unique product identification numbers and/or part numbers) General Description: Enclosed and non-enclosed switches Mounting Description: Base mounted - rigid **Applicant Information** Applicant Company Name: TRU Compliance, LLC Contact Person: Matt Tobolski, S.E. Mailing Address: 960 SW Disk Dr., Suite 104, Bend, OR 97702 Telephone: 844.878.0200 Email: mtobolski@trucompliance.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: 10/27/2016 Company Name: TRU Compliance, LLC President

"Access to Safe, Quality Healthcare Environments that Meet California's Diverse and Dynamic Needs'





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OFFICE USE ONLY

California Licensed Structural Engineer Responsible for the Engineering and Test Report(s)
Company Name: _TRU Compliance, LLC
Name: Matt Tobolski, S.E. California License Number: S5648
Mailing Address: 960 SW Disk Dr., Suite 104, Bend, OR 97702
Telephone: 844.878.0200 Email: mtobolski@trucompliance.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: ☐ Other (Please Specify):
Testing Laboratory
Company Name: Clark Dynamic Test Lab
Contact Name: Robert Francis
Mailing Address: 1801 Route 51 South, Building 8, Jefferson Hills, PA 15025
Telephone: _(412) 387-1001



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STATE OF CALIFORNIA - HEALTH AND HUMAN SERVICES AGENCY

11/29/2016

OSP-0157-10



OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT FACILITIES DEVELOPMENT DIVISION

Seismic Parameters
Design in accordance with ASCE 7-10 Chapter 13: ⊠ Yes □ No
Design Basis of Equipment or Components (F _p /W _p) = 1.87
S _{DS} (Design spectral response acceleration at short period, g) = 2.50
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) = 2.0
I _p (Importance factor) = 1.5
z/h (Height factor ratio) = 1.0
Equipment or Component Natural Frequencies (Hz) = See Attachment A
Overall dimensions and weight (or range thereof) = See Attachment A
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): Attachment A
OSHPD Approval (For Office Use Only) – Approval Expires on December 31, 2022
Circature: 14/20/2046
Signature: Date: 11/30/2016 Print Name: M. R. Karim Title: SHFR
Special Seismic Certification Valid Up to : $S_{DS}(g) = \underline{2.5}$ $z/h = \underline{1.0}$
Condition of Approval (if applicable):

"Access to Safe, Quality Healthcare Environments that Meet California's Diverse and Dynamic Needs"





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SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX



16046-CR-001, rev. 0

Manufacturer: G&W Electric

Model Line: SF6 Insulated Padmount & Vault Switchgear

TABLE 1

Certified Product Construction Summary:

Galvanized steel or stainless steel welded tank. Galvanized steel or stainless steel support assembly. Galvanized steel or stainless steel enclosure. 38 kV rating.

Certified Options Summary:

See Table 2

Mounting Configuration:

Base mounted - rigid

Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested.

Building Code: CBC 2016	Seismic Certification Limits:	$S_{DS} = 2.5 g$	z/h=1.0	/ _P = 1.5
Bunuing couct ede 2010	ocisime ecitimeation zimits.	$S_{DS} = 2.5 g$	z/h=0.0	· p 1.5

Notes Notes Notes Notes Notes Notes Notes	UUT
RAM 9" Spacing of LP Mechanisms w/o Enclosure 3-Way 30 33 67 725 5-Way 30 42 67 875 6-Way 30 51 67 1,025 6-Way 30 60 67 1,175 UUT: SS spt and tank 2-Way 30 32 64 825 UUT: SS spt and tank 3-Way 30 44 64 1,000 4-Way 30 56 64 1,200 5-Way 30 68 64 1,400 6-Way 30 80 64 1,700	001
9" Spacing of LP Mechanisms w/o Enclosure 3-Way 30 33 67 725 4-Way 30 42 67 875 5-Way 30 51 67 1,025 6-Way 30 60 67 1,175 UUT: SS spt and tank 2-Way 30 32 64 825 UUT: SS spt and tank 3-Way 30 44 64 1,000 LP Mechanisms w/o Enclosure 4-Way 30 68 64 1,400 5-Way 30 68 64 1,700	
LP Mechanisms w/o Enclosure 5-Way 30 51 67 1,025 6-Way 30 60 67 1,175 UUT: SS spt and tank 2-Way 30 30 42 67 875 UUT: SS spt and tank 2-Way 30 30 42 64 825 UUT: SS spt and tank 3-Way 30 44 64 1,000 4-Way 30 5-Way 30 68 64 1,200 5-Way 30 68 64 1,400 6-Way 30 80 64 1,700	
5-Way 30 51 67 1,025 6-Way 30 60 67 1,175 UUT: SS spt and tank SRAM 12.5" Spacing of LP Mechanisms w/o Enclosure 3-Way 30 44 64 1,000 4-Way 30 56 64 1,200 5-Way 30 68 64 1,400 6-Way 30 80 64 1,700	
SRAM 2-Way 30 60 67 1,175 UUT: SS spt and tank 12.5" Spacing of LP Mechanisms w/o Enclosure 3-Way 30 44 64 1,000 5-Way 30 56 64 1,200 5-Way 30 68 64 1,400 6-Way 30 80 64 1,700	
SRAM 12.5" Spacing of LP Mechanisms w/o Enclosure 3-Way 30 44 64 1,000 4-Way 30 56 64 1,200 5-Way 30 68 64 1,400 6-Way 30 80 64 1,700	4
12.5" Spacing of LP Mechanisms w/o Enclosure	3
LP Mechanisms w/o Enclosure 5-Way 30 56 64 1,200 5-Way 30 68 64 1,400 6-Way 30 80 64 1,700	
w/o Enclosure 5-Way 30 68 64 1,400 6-Way 30 80 64 1,700	
6-Way 30 80 64 1,700	
211	
2-Way 27 43 68 1,100	
VPNI 3-Way 27 58 68 1,400	
12.5" Spacing of NI&LP Mechanisms 4-Way 27 73 68 1,650	
w/o Enclosure 5-Way 27 88 68 1,800	
6-Way 27 103 68 2,300	

SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX



16046-CR-001, rev. 0

Manufacturer: G&W Electric

Model Line: SF6 Insulated Padmount & Vault Switchgear

TABLE 1

Certified Product Construction Summary:

Galvanized steel or stainless steel welded tank. Galvanized steel or stainless steel support assembly. Galvanized steel or stainless steel enclosure. 38 kV rating.

Certified Options Summary:

See Table 2

Mounting Configuration:

Base mounted - rigid

Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested.

Building Code: CBC 2016	Seismic Certification Limits:	$S_{DS} = 2.5 g z/h = 1.0$	/ _P = 1.5
Building Code. CDC 2010	Seisime Certification Limits.	$S_{DS} = 2.5 g z/h = 0.0$	1 p - 1.3

Model Line	Model	Dir	mensions	(in)	Weight	Notes	UUT
Model Line	Model	Depth	Width	Height	(lb)	Notes	001
	2-Way	54	36	90	1,550		
PRAM 9" Spacing of LP Mechanisms	3-Way	54	45	90	1,682		
	4-Way	54	54	90	1,800		
w/ Enclosure	5-Way	54	63	90	2,400		
W/ Eliciosare	6-Way	54	72	90	2,600		
600.11	2-Way	67	40	90	1,300		
SPRAM	3-Way	67	53	90	1,700		
12.5" Spacing of LP Mechanisms w/ Enclosure	4-Way	67	66	90	2,100		
	5-Way	67	79	90	2,500		
W/ Eliciosare	6-Way	67	92	90	2,900		
	2-Way	68	54	90	2,200	UUT: SS enc, spt and tank	1
PNI	3-Way	68	68	90	2,637		
12.5" Spacing of NI&LP Mechanisms	4-Way	68	82	90	3,075		
w/ Enclosure	5-Way	68	96	90	3,512		
Wy Elletosare	6-Way	68	112	90	3,950	UUT: GS enc, spt and tank	2

SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

COMPLIAN

16046-CR-001, rev. 0

Manufacturer:	G&W Electric	Table Description: Options	TABLE 2
Model Line:	SF6 Insulated Padmount & Vault Switchgear		IADLEZ

Building Code: CBC 2016 Seismic Certification Limits: $S_{DS} = 2.5 \text{ g} \quad \text{z/h} = 1.0$ $S_{DS} = 2.5 \text{ g} \quad \text{z/h} = 0.0$

Dunaning Code. CDC 20		Seisinic Certinic	$S_{DS} = 2.5 \text{g} z/h = 0.0$		
Component Type	Manufacturer	Model	Description	Notes	UUT
CONTROLS	COM Floatric	Type 2.0	NEMA 4 fiberglass enclosure, knobs		2
CONTROLS	G&W Electric	Type 3.1	NEMA 4 fiberglass enclosure, display		1
LP SWITCH	CCS	611GZE8101	1/4" SS pressure port and diaphragm		1-4
INTERNAL AUXILIARY	OMRON	V-15G2-1C25-K	LP auxiliary contact		1-4
CONTACT	Honeywell	BA-2RV2-A2	NI auxiliary contact		1-2

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UUT 1

Manufacturer: **G&W Electric**

Model Line: SF6 Insulated Padmount & Vault Switchgear

Model Number: PNI - 2-Way Serial Number: 2011-0219-0002

Product Construction Summary:

Stainless steel welded tank. Stainless steel support assembly. Stainless steel enclosure. 38 kV rating.

Options/Subcomponent Summary:

Controls: G&W Electric Type 3.1; LP Switch: CCS 611GZE8101; Internal Auxiliary Contacts: Omron V-15G2-1C25-K, Honeywell BA-2RV2-A2.

	UUT Properties									
Weight	Weight Dimension (in)					Lowes	t Natural	Frequen	cy (Hz)	
(lb)	Depth	Width	Width Heig		Front	-Back	Side-Side		Ver	tical
2035	68	54	54 9		19.3		8.3		>33	
	UUT Highest Passed Seismic Run Information									
Buildi	ing Code	Test Criter	ia	S _{DS} (g)	z/h	I _P	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
СВО	C 2016	ICC-ES AC1	56	2.5	1.0	1.5	4.00	3.00	1.67	0.67

Test Mounting Details:



Unit mounted to table using (8) 5/8"-11 Hex Head Bolts.

Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.

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UUT 2

Manufacturer: **G&W Electric**

Model Line: SF6 Insulated Padmount & Vault Switchgear

> Serial Number: 2011-0219-0001

Model Number: PNI - 6-Way

Product Construction Summary:

Galvanized steel welded tank. Galvanized steel support assembly. Galvanized steel enclosure. 38 kV rating.

Options/Subcomponent Summary:

Controls: G&W Electric Type 2.0; LP Switch: CCS 611GZE8101; Internal Auxiliary Contacts: Omron V-15G2-1C25-K, Honeywell BA-2RV2-A2.

	UUT Properties										
Weight	Weight Dimension (in)					Lowes	t Natural	Frequen	cy (Hz)		
(lb)	Depth	Width	Width Heig		Front	-Back	Side-Side		Ver	tical	
3825	68	112 9		00	16	16.3		19.5		13.5	
	UUT Highest Passed Seismic Run Information										
Build	ing 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)	
СВ	CBC 2016		ICC-ES AC156		1.0	1.5	4.00	3.00	1.67	0.67	

Test Mounting Details:



Unit mounted to table using (8) 5/8"-11 Hex Head Bolts.

Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.

> TRU Compliance, LLC - A Tobolski Watkins Affiliate 844.TRU.0200 | info@trucompliance.com

16046-CR-001, rev. 0



UUT3

Manufacturer: **G&W Electric**

Model Line: SF6 Insulated Padmount & Vault Switchgear

Model Number: SRAM - 2-Way Serial Number: 2011-0429-0001

Product Construction Summary:

Stainless steel welded tank. Stainless steel support assembly. 38 kV rating.

Options/Subcomponent Summary:

LP Switch: CCS 611GZE8101; Internal Auxiliary Contacts: Omron V-15G2-1C25-K, Honeywell BA-2RV2-A2.

			UUT Pro	operties						
Weight Dimension (in)					Lowes	t Natural	Frequen	cy (Hz)		
(lb)	Depth	Width	Width Height		Front	Front-Back		-Side	Vert	tical
750	30	32	32 6		18.7		19.8		>33	
	UUT Highest Passed Seismic Run Information									
Build	ing Code	Test Criter	ia	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		56	2.5	1.0	1.5	4.00	3.00	1.67	0.67	

Test Mounting Details:



Unit mounted to table using (4) 5/8"-11 Hex Head Bolts.

Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.

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16046-CR-001, rev. 0



UUT 4

Manufacturer: G&W Electric

Model Line: SF6 Insulated Padmount & Vault Switchgear

RAM - 6-Way

Serial Number: 2011-0419-0003

Product Construction Summary:

Model Number:

Stainless steel welded tank. Stainless steel support assembly. 38 kV rating.

Options/Subcomponent Summary:

LP Switch: CCS 611GZE8101; Internal Auxiliary Contacts: Omron V-15G2-1C25-K, Honeywell BA-2RV2-A2.

			UUT Pro	operties						
Weight Dimension (in)					Lowes	t Natural	Frequen	cy (Hz)		
(lb)	Depth	Width	Width Height		Front	Front-Back Si		-Side	Vert	tical
1175	30	60	60 6		14.2		19.5		>33	
UUT Highest Passed Seismic Run Information										
Build	ing Code	Test Criter	ia	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		56	2.5	1.0	1.5	4.00	3.00	1.67	0.67	

Test Mounting Details:



Unit mounted to table using (4) 5/8"-11 Hex Head Bolts.

Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.