APPLICATION FOR OSHPD SPECIAL SEISMIC CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY	
APPLICATION #:	OSP – 0403

OSHPD Special Seismic Certification Preapproval (OSP)

Type: ☐ New ☒ Renewal

Manufacturer Information

Manufacturer: GE Energy

Manufacturer's Technical Representative: William Elliott

Mailing Address: 7000 W. Bert Kouns Industrial Loop, Shreveport, LA 71129

Telephone: (318) 683-5291 Email: William.Elliottjr@ge.com

Product Information

Product Name: Ge Network Transformer

Product Type: Liquid Filled Transformer

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

General Description: Floor mounted

Mounting Description: Rigid floor mounted – welded

Applicant Information

Applicant Company Name: W.E. Gundy & Associates, Inc.

Contact Person: David Gundy, PE

Mailing Address: 1199 Shoreline Dr., Suite 310, Boise, ID 83702

Telephone: (208) 342-5989 Ext. 113 Email: dgundy@wegai.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: 5/9/2019

Title: Vice President Company Name: W.E. Gundy & Associates, Inc.

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

Company Name: W.E. Gundy & Associates, Inc.

Name: Travis Soppe, SE California License Number: S6115

Mailing Address: 1199 Shoreline Dr., Suite 310, Boise, ID 83702

Telephone: (208) 342-5989 Ext. 115 Email: tsoppe@wegai.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: Clark Testing Laboratory

Contact Name: Devon Lohr

Mailing Address: 1801 Route 51, Jefferson Hills, PA 15025

Telephone: (412) 387-1026 Email: dlohr@clarktesting.com

Seismic Parameters

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

Design Basis of Equipment or Components (F_p/W_p) = 1.125

S_{DS} (Design spectral response acceleration at short period, g) = 2.50

a_p (In-structure equipment or component amplification factor) = 1.0

R_p (Equipment or component response modification factor) = 2.5

Ω_0 (System overstrength factor) = 2.0

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) =

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): Certified Product Matrix, UUT Summary Sheets, Subcomponent Certification Letter

OSHPD Approval (For Office Use Only) – Approval Expires on December 31, 2025

Signature: Date: March 4, 2020

Print Name: Timothy J. Piland Title: SSE

Special Seismic Certification Valid Up to: S_{DS} (g) = 2.50 z/h = 0

Condition of Approval (if applicable):

GE NETWORK TRANSFORMERS
CERTIFIED PRODUCT LINE MATRIX

WEGAI
W.E. GUNDY & ASSOCIATES, INC.
STRUCTURAL & EARTHQUAKE ENGINEERING

ID Number	Power Rating (kVA)	HV Rating (kV)	Main Tank			Max Oil Weight (lbs)	Maximum Service Weight (lbs)	Representative UUT
			Width (in)	Depth (in)	Height (in)			
NS40G41AC7B1MB	500	12	69.1	38.7	61.3	1680	7780	UUT-2
NS41G41AC7B1MA	750	12	69.5	46.9	70.3	2150	9350	interpolated
NS41G41CL7B1MA	750	12	66.1	46.9	70.3	2120	9020	interpolated
NS41T08AL7B1MA	750	34.5	66.1	50.7	70.3	2280	10030	interpolated
NS42G41CL7B1MA	1000	12	73.1	49.8	72.3	2620	11120	interpolated
NS42H11CD1X9MA	1000	13.75	93.7	54.3	79.4	3225	12900	UUT-3
NS42T08AL7B1MA	1000	34.5	73.1	45.7	84.3	3300	12100	interpolated
NS44G41CL7B1MA	1500	12	82.8	53.9	77.3	3170	15620	interpolated
NS44T08AL7B1MA	1500	34.5	92.8	57.0	88.3	5340	19340	interpolated
NS46G41CL7B1MA	2000	12	96.9	63.8	79.3	4500	21200	interpolated
NS46T08AL7BMA	2000	34.5	92.8	56.9	88.3	5030	22400	UUT-1

GE NETWORK TRANSFORMER PRODUCT LINE
CERTIFIED SUBCOMPONENT MATRIX

WEGAI
W.E. GUNDY & ASSOCIATES, INC.
STRUCTURAL & EARTHQUAKE ENGINEERING

Subcomponent ID Number	Manufacturer	Width/ Diameter (in)	Depth (in)	Height (in)	Bolted/ Welded	Weight (lbs)	UUT
HV Bushing (*1)							
1900K502P39	Elastimold (K1601-PC-S1-R)	2.6		4.4	Welded	1.0	UUT-1
1900K502P40	Elastimold (L1601-PC-S1-R)	2.6		4.4	Welded	1.2	UUT-2
1900K502P43	Elastimold (K1601-PC-T1-R)	2.6		10.9	Welded	2.0	interpolated
1900K502P49	Elastimold (L1601-PC-T1-R)	2.6		10.9	Welded	2.0	interpolated
1900K544P21	Elastimold (600T1)	4.5		14.9	Welded	4.0	UUT-3
1900K544P24	Elastimold (K600T1)	4.5		14.9	Welded	4.0	interpolated
7904A108G01	Piedmont (402408-K01)	3.8		11.4	Bolted	4.5	UUT-3
Bushings are tapered cylindrical shape, "width" = max. diameter, "height" = length							
LV Bushing (*1)							
7800K089G01	OLG	4.0		7.5	Welded	5.2	UUT-1
7800K090G01	OLG	4.5		8.1	Welded	9.3	UUT-2 & 3
Bushings are cylindrical shape, with 4.0" diameter, 7.5" long							
Neutral Bushing							
7804B090P06	EPC (10-090-099)	4.0	0.5	13.1	Bolted	13.8	UUT-1 & 2
7804B090P12	EPC (10-110-104E07T-01)	6.0	6	21.4	Bolted	38.6	UUT-3
Panel Radiators							
7634B560G31 & 32	General Electric	61.0	1.12	43.0	Welded	506	UUT-1
	General Electric	58.0	1.12	50.0	Welded		interpolated
7634B810G05	General Electric	65.0	1.12	55.0	Welded	708	UUT-3
	General Electric	65.0	1.12	64.0	Welded		interpolated
	General Electric	58.0	1.12	53.0	Welded		interpolated
	General Electric	74.0	1.12	57.0	Welded		interpolated
	General Electric	84.0	1.12	69.0	Welded		interpolated
	General Electric	88.0	1.12	60.0	Welded		interpolated
7634B735G18 & 22	General Electric	84.0	1.12	69.0	Welded	1074	UUT-2
Weights are per panel							
Thermometer (*1)							
9530K001G01	Qualitrol (150-002-01)	4.20		7.1	Screwed	5.2	UUT-1 - 3
Circular dial-faced gauge 4.22" diameter, 5.50" stem screws into flange on tank, 7.12" total length							

GE NETWORK TRANSFORMER PRODUCT LINE
CERTIFIED SUBCOMPONENT MATRIX

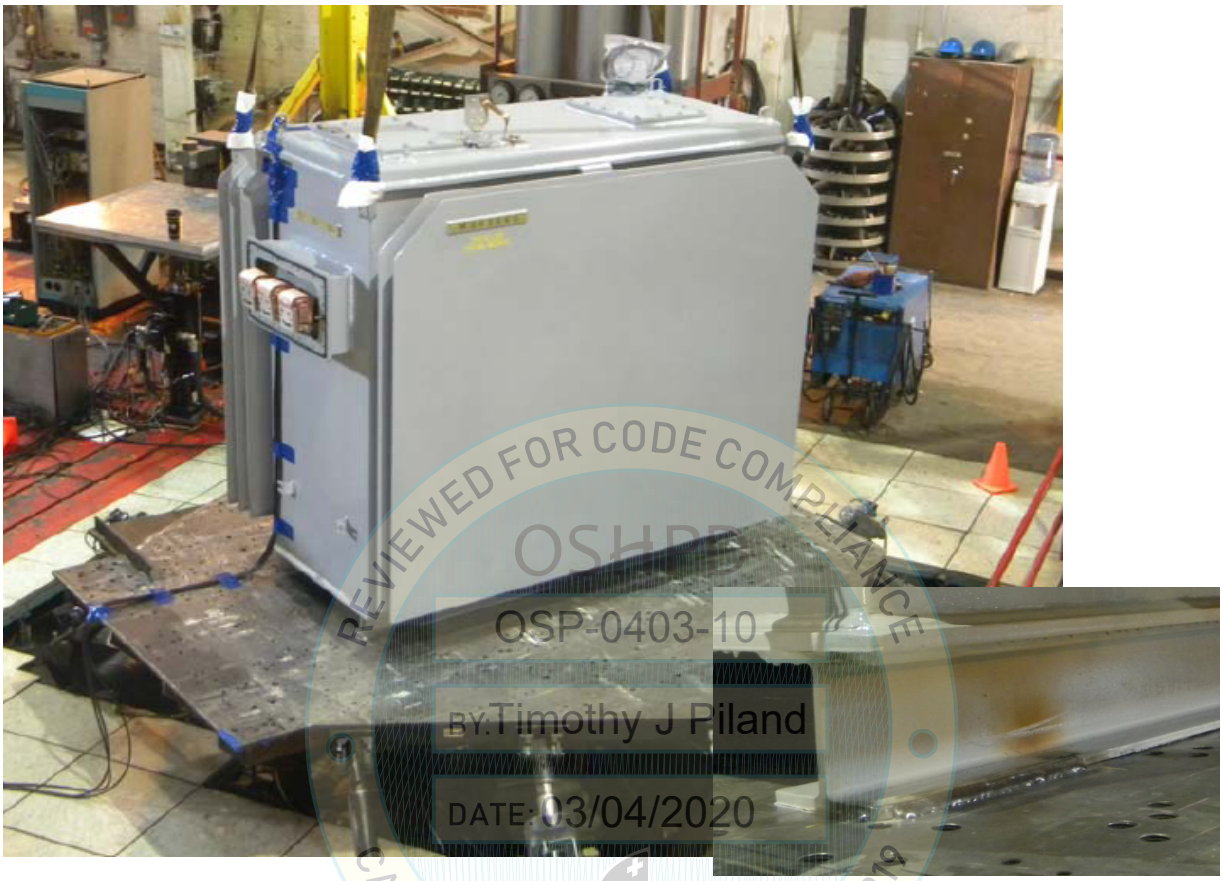
WEGAI
W.E. GUNDY & ASSOCIATES, INC.
STRUCTURAL & EARTHQUAKE ENGINEERING

Subcomponent ID Number	Manufacturer	Width/ Diameter (in)	Depth (in)	Height (in)	Bolted/ Welded	Weight (lbs)	UUT
Grounding Switch							
8504B111P51	Huaming (2HM2060.4051.51)	19.10	11.30	17.45	Screwed	88.0	UUT-3
Pressure Sensor (*1)							
8730A001P30	Qualitrol (TRN-013-1)	1.1		3.8	Screwed	3.7	UUT-1 & 2
Sensor is cylindrical with 1.07" diameter, 3.78" tall, screws into 0.25" NPT threads on cover, 16 foot cable							
Liquid Level Gauge (*1)							
8731A010P21	Qualitrol (030-048-01)	3.0		0.8	Welded/ Bolted	1.0	UUT-1 - 3
Liquid Level Gauge has circular dial-face, "width" = diameter, "height" = thickness (of dial). Internal drive assembly is welded inside tank, and dial-face is bolted onto flange on exterior of tank.							

Notes: (*N = note number applicable to section)
1) Non-square parts have notes below them defining the dimensions to be a diameter, thickness, etc.

UUT-1	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING

Mounting Details: Floor mounted with 6 - 8" Long 3/8" Fillet Welds, 1 at each end and 1 at the center of each I-beam with 4 - 1" Long 3/8" End Return Fillet Weld at the outside of each end of each I-beam



Manufacturer: GE Energy	**Test Location:** Clark Testing Laboratory
Product Line: Network Transformer Product Line	**Report No.:** 752-R
Identification Number: M262663 (SR# Q780562-UKF)	
UUT Function: 34.5kV Submersible Distribution Power Transformer	
UUT Description: The unit is a standalone unit constructed of an oil filled steel main tank supported by steel wideflange beams, internal core and coils, and attached components.	
UUT Component Description: The unit contains a lead Core with copper Coils and is fitted with Elastimold (K600T1) HV Bushings, OLG LV Bushings, EPC (10-090-099) Neutral Bushings, GE Panel Radiaors, Qualitrol (150-002-01) Thermometer, Qualitrol (TRN-013-1) Pressure Sensor, Qualitrol (030-048-01) Liquid Level Gage.	

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Unit Width	Unit Depth	Unit Height	FB	SS	V
22,400	92.8	56.9	88.3	14.6	8.1	19

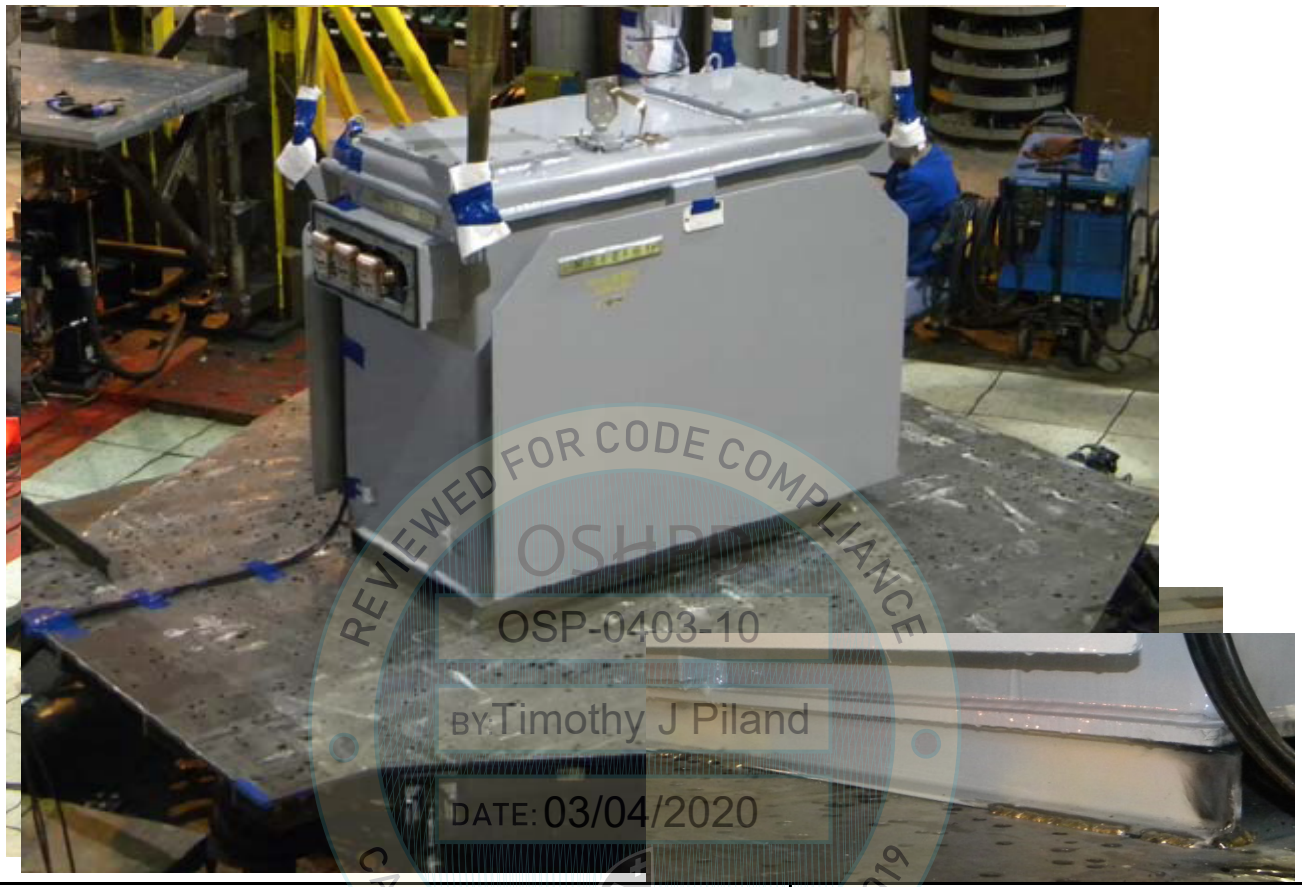
SEISMIC TEST PARAMETERS

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	2.50g	0.0	1.5	2.50g	1.00g	1.68g	0.67g

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 test.

UUT-2	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. Gundy & Associates, Inc. Structural & Earthquake Engineering

Mounting Details: Floor mounted with 6 - 8" Long 3/8" Fillet Welds, 1 at each end and 1 at the center of each I-beam with 4 - 1" Long 3/8" End Return Fillet Weld at the outside of each end of each I-beam



Manufacturer: GE Energy	**Test Location:** Clark Testing Laboratory
Product Line: Network Transformer Product Line	**Report No.:** 752-R
Identification Number: M262665 (SR# Q780573-UKF)	
UUT Function: 12kV Submersible Distribution Power Transformer	
UUT Description: The unit is a standalone unit constructed of an oil filled steel main tank supported by steel wideflange beams, internal core and coils, and attached components.	
UUT Component Description: The unit contains a lead Core with aluminum Coils and is fitted with Elastimold (K1601-PC-SI-R) HV Bushings, OLG LV Bushings, EPC (10-090-099) Neutral Bushings, GE Panel Radiaors, Qualitrol (150-002-01) Thermometer, Qualitrol (TRN-013-1) Pressure Sensor, Qualitrol (030-048-01) Liquid Level Gage.	

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Unit Width	Unit Depth	Unit Height	FB	SS	V
7,780	69.1	38.7	61.3	23.7	26.6	>33

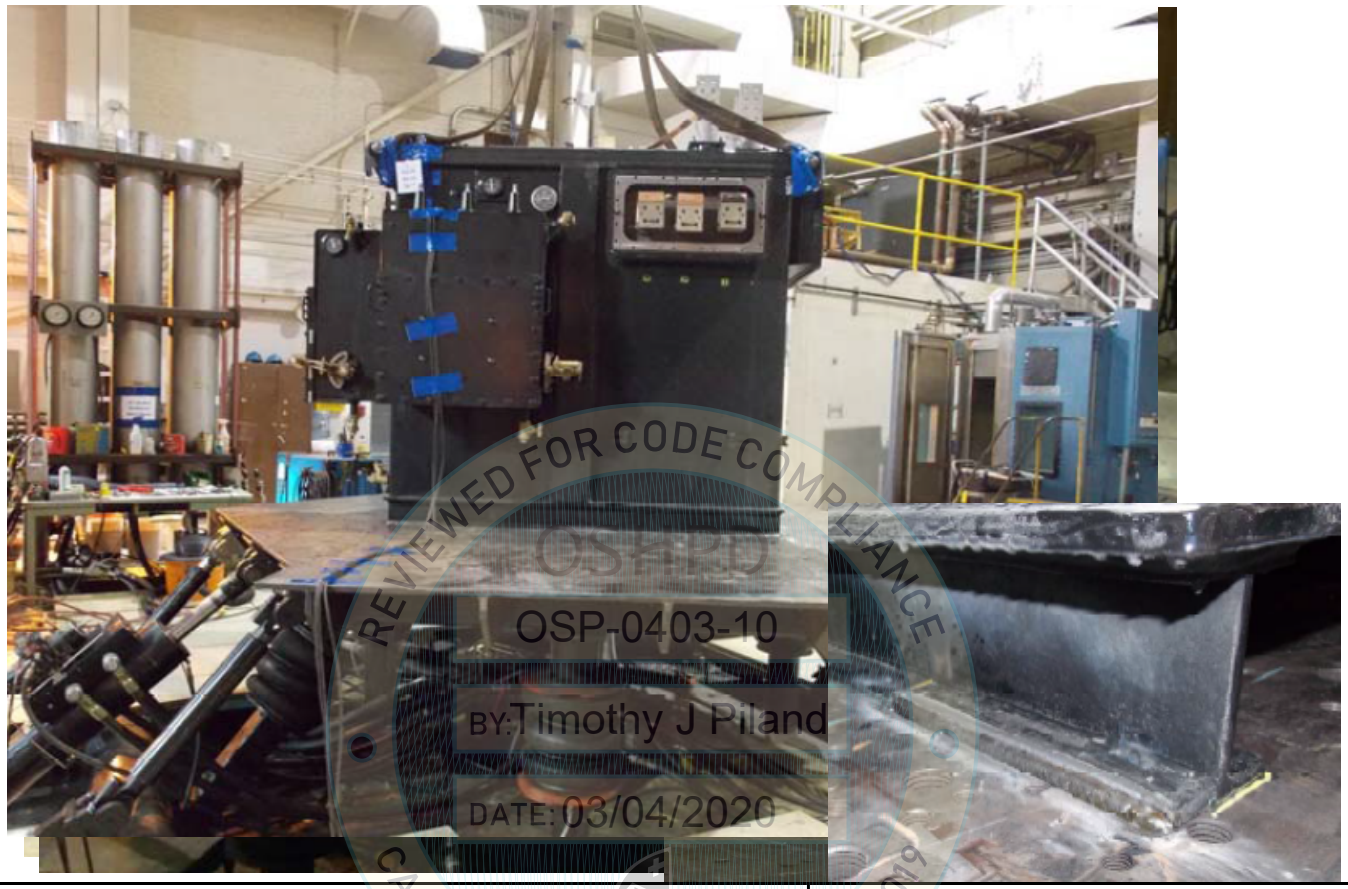
SEISMIC TEST PARAMETERS

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	2.50g	0.0	1.5	2.50g	1.00g	1.68g	0.67g

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 test.

UUT-3	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. Gundy & Associates, Inc. Structural & Earthquake Engineering

Mounting Details: Floor mounted with 6 - 8" Long 3/8" Fillet Welds, 1 at each end and 1 at the center of each I-beam with 4 - 1" Long 3/8" End Return Fillet Weld at the outside of each end of each I-beam



Manufacturer: GE Energy	**Test Location:** Clark Testing Laboratory
Product Line: Network Transformer Product Line	**Report No.:** 12-2214-R
Identification Number: NS42H11CD1X9MA (SR #Q783328-UKG)	
UUT Function: 13.75kV Submersible Distribution Power Transformer	
UUT Description: The unit is a standalone unit constructed of an oil filled steel main tank supported by steel wideflange beams, internal core and coils, and attached components.	
UUT Component Description: The unit contains a silicon-steel Core with copper & aluminum Coils and is fitted with Elastimold (K600T1) HV Bushings, OLG LV Bushings, GE Panel Radiators, Qualitrol (150-002-01) Thermometer, Qualitrol (030-048-01) Liquid Level Gage.	

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Unit Width	Unit Depth	Unit Height	FB	SS	V
12,900	90.1	54.3	79.4	14.8	20.5	>33Hz

SEISMIC TEST PARAMETERS

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	2.50g	0.0	1.5	2.50g	1.00g	1.68g	0.67g

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 test.