WEIDMANN

Sunbelt Transformer Ltd

WEIDMANN DIAGNOSTIC SOLUTIONS

4011 POWER INN ROAD + SACRAMENTO, CA + 95826

916 455 2284 + 916 455 0191 WWW.WEIDMANN-DIAGNOSTICS.COM

Mfr: SUNBELT

Serial#: ST040159600

TEST REPORT 01-6725308-458889-00

Control#: 6725308

Page 1 of 2

6301 SEVEN SEAS AV	∕E.	Location: (OBR SS		kV : 115	Order#: 4	458889
		Equipment:	TRANSFORMER	k\	VA : 10000	Account:	720
BAKERSFIELD, CA 93	ELD, CA 93308 US Compartment: M		MAIN(BOTTOM)	Year M	f'd:	Received:	11/21/2014
ATTN: GILBERT GUE	RRERO	Breathing: S	SEAL	Syringe	ID : AL 564	Reported: 11/25/2014	
PO#: STEFINIE WHITI	MAN	Bank: I	Phase: 3	Bottle	ID : 564		
Project ID:		Fluid: MIN	USGal: 4100	Sampled	By: T MANESS		
Customer ID: TH03							
	Lab C	ontrol Number:	6725308	6715202	6595885		
		Date Sampled:	11/19/2014	10/20/2014	10/01/2013		
		Order Number:	458889	456657	429913		
		Oil Temp:	50	50	50		
Dissolved Gas Analys	sis (DGA) Hydro	gen (H2) (ppm):	4030	3592	1879		
ASTM	Methar	ne (CH4) (ppm):	629	624	518		
D-36121	Ethane	e (C2H6) (ppm):	173	172	162		
	Ethylene	e (C2H4) (ppm):	123	123	114		
	Acetylene	e (C2H2) (ppm):	<1	<1	<1		
	Carbon Monox	ide (CO) (ppm):	586	563	436		
	Carbon Dioxid	de (CO2) (ppm):	8045	8127	8019		
		gen (N2) (ppm):		77553	75809		
		gen (O2) (ppm):		<500	4927		
	Total Dissolved Ga			91175	91864		
Total Dis	solved Combustible Gas			5074	3109		
		valent TCG (%):	1	7.9715	4.4729		
	Equi						
DCA					ore portial discharge	activity (1900 ppm)	
DGA Diagnostics	DGA Keys Gas / Interp	pretive Method:	Hydrogen: Condition	4 Indications of sev			
_	DGA Keys Gas / Interp PER IEE	pretive Method: E C57.104-2008	Hydrogen: Condition 4 Methane: Condition 3 Ethane: Condition 4 Ir Ethylene: Condition 3 Acetylene within cond	4 Indications of sev Significant Indicati- ndications of severe Indications of signi dition 1 limits (1 ppn	ons of overheated (>1 ely overheated (>250° ificantly overheated (> n).	150°C) oil (400 ppm °C) oil (150 ppm). •350°C) oil (100 ppi	n). m).
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Comment: General Oil Quality (CD-15331 D-9711 InD-9741 D-15001 D-15241 D-15241 D-15241 D-15241 D-15241	DGA Keys Gas / Interpretable PER IEE (moss) DGA TDCG Rate Interpretable (two moss) DGA Cellulose (Pawds Recommendation of the period of the	pretive Method: E C57.104-2008 St recent sample) pretive Method: E C57.104-2008 St recent sample) St recent sample) St recent sample Condition Code: mended Action: (ppm): (dynes/cm): (mg KOH/g): (Relative): (Relative):	Hydrogen: Condition of Methane: Condition 3 Ethane: Condition 3 Ethane: Condition 4 In Ethylene: Condition 3 Acetylene within cond Carbon Monoxide: Coppm). Carbon Dioxide: Condition 4 Leppm). TDCG: Condition 4 Leppm). Retest Daily. Consider removal from CO2/CO >= 10: Indicated WARNING Exercise extreme causervice. 17 37.35 0.007 L1.5 H2O ND 12 (1-24C)	4 Indications of several Significant Indications of several Indications of several Indications of significant I limits (1 ppn andition 3 Indication dition 3 Significant I levels indicate excess at several several Indication of thermal decreased in the several Indicate Indi	ons of overheated (>1 ely overheated (>250° ificantly overheated (> n). Is of significantly overleated overheated (> n). Is of significantly overleated overheated (> n). It is of significantly overleated overheated overh	150°C) oil (400 ppm). C) oil (150 ppm). 350°C) oil (100 ppi heated cellulose insula Exercise extreme c	n). m). sulation (570 tition (4000 aution (4630

Notations: 1. Analysis is ISO/IEC 17025:2005 accredited, L-A-B Accredited Certificate Number L2303.05 2. This test is conducted by a subcontracted laboratory. 3. Subcontracted laboratory has received ISO Standard 17025 accreditation for this test. 5. This test is conducted by Weldmann Laboratory other than Primary Lab. 6. Weldmann Laboratory has received ISO Standard 17025 accreditation for this test. 7. Imported Sample: WEIDMANN Diagnostic Solutions accepts no responsibility for these results; accreditation status does not apply to these results. 8. Imported Equipment

Accreditation applies to current analysis only. The analyses, opinions or interpretations contained in this report are based upon material and information supplied by the client. WEIDMANN Diagnostic Solutions does not imply that the contents of the sample received by this laboratory are the same as all such material in the environment from which the sample was taken. Our test results relate only to the sample or samples tested. Any interpretations or opinions expressed represent the best judgment of WEIDMANN Diagnostic Solutions. WEIDMANN Diagnostic Solutions assumes no responsibility and makes no warranty or representation, expressed or implied as to the condition, productivity or proper operation of any equipment or other property for which this report may be used or relied upon for any reason whatsoever. This test report shall not be reproduced except in full, without written approval of the laboratory.

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Sunbelt Transformer Ltd	Serial#: ST040159600	Mfr: SUNBELT	Control#: 6725308
6301 SEVEN SEAS AVE.	Location: 08R SS	kV: 115	Order#: 458889
	Equipment: TRANSFORMER	kVA: 10000	Account: 720

BAKERSFIELD, CA 93308 US Compartment: MAIN(BOTTOM) Year Mf'd: Received: 11/21/2014
ATTN: GILBERT GUERRERO Breathing: SEAL Syringe ID: AL 564 Reported: 11/25/2014

PO#: STEFINIE WHITMAN Bank: Phase: 3 Bottle ID: 564

Project ID: Fluid: MIN USGal: 4100 Sampled By: T MANESS

Customer ID: TH03

Customer ib	. 11100				
	Lab	Control Number:	6725308	6715202	6595885
		Date Sampled:	11/19/2014	10/20/2014	10/01/2013
		Order Number:	458889	456657	429913
		Oil Temp:	50	50	50
D-1298	Specific Gravity	(Relative):	0.8899	0.892	0.8911
D-2668	Oxidation Inhibitor	(wt. %)	0.205	0.199	0.217
1					

GOQ Diagnostics

Moisture in Oil:
Acceptable for in-service oil (25 ppm max).

Acceptable for in-service oil (30 dynes/cm min).

Acceptable for in-service oil (30 dynes/cm min).

Acceptable for in-service oil (0.15 mg KOH/g max).

Color Number and Visual:
Diagnostic not applicable.

Dielectric Breakdown D-1816: Exceeds limit for in-service oil (28 kV min @ 1mm).

Power Factor @25C: Acceptable for in-service oil (0.5% max).

Oxidation Inhibitor: Diagnostic not applicable for type 1 oil. Acceptable for in-service oil type 2 (0.09% min).

 Comment:

 PCB
 Concentration (ppm):
 < 1.0 PPM</th>
 < 1.0 PPM</th>
 < 1.0 PPM</th>

 EPA Method 8082¹
 PCB Type (Arocolor):
 ND
 ND
 ND

 Reporting Limit:
 1.0
 1.0
 1.0

Comment:

End of Test Report

Authorized By:

CHRISTINA SCALLY SENIOR CHEMIST

Notations: 1. Analysis is ISO/IEC 17025:2005 accredited, L-A-B Accredited Certificate Number L2303.05 2. This test is conducted by a subcontracted laboratory. 3. Subcontracted laboratory has received ISO Standard 17025 accreditation for this test. 5. This test is conducted by Weidmann Laboratory other than Primary Lab. 6. Weidmann Laboratory other than Primary Lab. 6. Weidmann Laboratory has received ISO Standard 17025 accreditation for this test. 7. Imported Sample: WeIDMANN Diagnostic Solutions accepts no responsibility for these results accreditation status does not apply to these results. 8. Imported Equipment

WEIDMANN

WEIDMANN DIAGNOSTIC SOLUTIONS

4011 POWER INN ROAD + SACRAMENTO, CA + 95826

916 455 2284 + 916 455 0191 WWW.WEIDMANN-DIAGNOSTICS.COM TEST REPORT 01-6725312-458889-00

Reported: 11/25/2014

Page 1 of 1

 Sunbelt Transformer Ltd
 Serial#:
 CA45142
 Mfr:
 ABB
 Control#:
 6725312

 6301 SEVEN SEAS AVE.
 Location:
 08-SS
 kV:
 12.47
 Order#:
 458889

 Equipment:
 LTC
 kVA:
 Account:
 720

 BAKERSFIELD, CA 93308 US
 Compartment:
 COMMON
 Year Mf'd:
 2001
 Received:
 11/21/2014

ATTN: GILBERT GUERRERO Breathing: VENTED Syringe ID: AL 565

PO#: STEFINIE WHITMAN Bank: Phase: Bottle ID:

Project ID: Fluid: MIN USGal: 147 Sampled By: T MANESS

Customer ID: TH03-TAP CHANGER Model: UNKNOWN Lab Control Number: Order Number: Order Number: 458889 6725312 Discolved Gas Analysis (DGA) Hydrogen (H2) (ppm): 54 ASTM Methane (CH4) (ppm): Bthane (CH4) (ppm): 63 63 Acetylene (C2H2) (ppm): 731 63 Acetylene (C2H2) (ppm): 8 731 Carbon Monoxide (CO) (ppm): 8 83043 Oxygen (O2) (ppm): 94676 30231 Total Dissolved Gas (TDG) (ppm): 94676 877 Total Dissolved Combustible Gas (TDCG) (ppm): 877 94676 Total Dissolved Combustible Gas (TDCG) (ppm): 94676 0.2073 DGA Ratio Analysis: Diagnostics Heating to arcing gas ratios within normal limits. Diagnostics PCB Concentration (ppm): 94676 Comment: PCB SED, Reporting Limit: 1.0 1.0 PPM EPA Method 8082¹ PCB Type (Arocolor): Reporting Limit: 1.0 1.0 PPM Comment: DIELECTRIC REQUESTED AFTER CONTAINER PROCESSED, RESULTS MAYBE AFFECTED 1.0 PPM	Project ID:	Fluid: MIN U	JSGal: 147	Sampled By: T MANESS	
Date Sampled: 11/19/2014	Customer ID: TH03-TAP CHANGE	ER N	lodel: UNKNOWN		
Note		Lab Control Number:	6725312		
Dissolved Gas Analysis (DGA)		Date Sampled:	11/19/2014		
Dissolved Gas Analysis (DGA) Hydrogen (H2) (ppm): 54 ASTM Methane (CH4) (ppm): 18 D-3612¹ Ethane (C2H6) (ppm): 3 Ethylene (C2H4) (ppm): 63 Acetylene (C2H2) (ppm): 731 Carbon Monoxide (CO) (ppm): 8 Carbon Dioxide (CO2) (ppm): 525 Nitrogen (N2) (ppm): 63043 Oxygen (O2) (ppm): 30231 Total Dissolved Gas (TDG) (ppm): 94676 Total Dissolved Combustible Gas (TDG) (ppm): 877 Equivalent TCG (%): 0.2073 DGA Ratio Analysis: Heating to arcing gas ratios within normal limits. Diagnostics Comment: PCB Concentration (ppm): < 1.0 PPM EPA Method 8082¹ PCB Type (Arocolor): ND Reporting Limit: 1.0		Order Number:	458889		
ASTM Methane (CH4) (ppm): 18 D-3612¹ Ethane (C2H6) (ppm): 3 Ethylene (C2H4) (ppm): 63 Acetylene (C2H2) (ppm): 731 Carbon Monoxide (CO) (ppm): 8 Carbon Dioxide (CO2) (ppm): 525 Nitrogen (N2) (ppm): 63043 Oxygen (O2) (ppm): 30231 Total Dissolved Gas (TDG) (ppm): 94676 Total Dissolved Combustible Gas (TDCG) (ppm): 877 Equivalent TCG (%): 0.2073 DGA Ratio Analysis: Heating to arcing gas ratios within normal limits. Diagnostics Comment: PCB Concentration (ppm): < 1.0 PPM EPA Method 8082¹ PCB Type (Arocolor): ND Reporting Limit: 1.0		Oil Temp:			
D-3612¹	Dissolved Gas Analysis (DGA)	Hydrogen (H2) (ppm):	54		
Ethylene (C2H4) (ppm): Acetylene (C2H2) (ppm): 731 Carbon Monoxide (CO) (ppm): 8 Carbon Dioxide (CO2) (ppm): 525 Nitrogen (N2) (ppm): 30231 Total Dissolved Gas (TDG) (ppm): 48 Total Dissolved Gas (TDG) (ppm): 525 Nitrogen (N2) (ppm): 30231 Total Dissolved Combustible Gas (TDCG) (ppm): 877 Equivalent TCG (%): 0.2073 DGA Ratio Analysis: Diagnostics Comment: PCB Concentration (ppm): EPA Method 8082¹ PCB Type (Arocolor): Reporting Limit: 1.0	ASTM	Methane (CH4) (ppm):	18		
Acetylene (C2H2) (ppm): 731 Carbon Monoxide (CO) (ppm): 8 Carbon Dioxide (CO2) (ppm): 525 Nitrogen (N2) (ppm): 63043 Oxygen (O2) (ppm): 30231 Total Dissolved Gas (TDG) (ppm): 94676 Total Dissolved Combustible Gas (TDG) (ppm): 877 Equivalent TCG (%): 0.2073 DGA Ratio Analysis: Diagnostics Comment: PCB Concentration (ppm): < 1.0 PPM EPA Method 8082¹ PCB Type (Arocolor): ND Reporting Limit: 1.0	D-3612 ¹	Ethane (C2H6) (ppm):	3		
Carbon Monoxide (CO) (ppm): 8 Carbon Dioxide (CO2) (ppm): 525 Nitrogen (N2) (ppm): 63043 Oxygen (O2) (ppm): 30231 Total Dissolved Gas (TDG) (ppm): 94676 Total Dissolved Combustible Gas (TDCG) (ppm): 877 Equivalent TCG (%): 0.2073 DGA Ratio Analysis: Diagnostics Comment: PCB Concentration (ppm): < 1.0 PPM EPA Method 8082¹ PCB Type (Arocolor): ND Reporting Limit: 1.0		Ethylene (C2H4) (ppm):	63		
Carbon Dioxide (CO2) (ppm): 525 Nitrogen (N2) (ppm): 63043 Oxygen (O2) (ppm): 30231 Total Dissolved Gas (TDG) (ppm): 94676 Total Dissolved Combustible Gas (TDCG) (ppm): 877 Equivalent TCG (%): 0.2073 DGA Ratio Analysis: Heating to arcing gas ratios within normal limits. Diagnostics Comment: PCB Concentration (ppm): < 1.0 PPM EPA Method 8082¹ PCB Type (Arocolor): ND Reporting Limit: 1.0		Acetylene (C2H2) (ppm):	731		
Nitrogen (N2) (ppm): 63043 Oxygen (O2) (ppm): 30231 Total Dissolved Gas (TDG) (ppm): 94676 Total Dissolved Combustible Gas (TDCG) (ppm): 877 Equivalent TCG (%): 0.2073 DGA Ratio Analysis: Heating to arcing gas ratios within normal limits. Diagnostics Comment: PCB Concentration (ppm): < 1.0 PPM EPA Method 8082¹ PCB Type (Arocolor): ND Reporting Limit: 1.0	C	arbon Monoxide (CO) (ppm):	8		
Oxygen (O2) (ppm): 30231 Total Dissolved Gas (TDG) (ppm): 94676 Total Dissolved Combustible Gas (TDCG) (ppm): 877 Equivalent TCG (%): 0.2073 DGA Ratio Analysis: Heating to arcing gas ratios within normal limits. Diagnostics Comment: PCB Concentration (ppm): < 1.0 PPM EPA Method 8082¹ PCB Type (Arocolor): ND Reporting Limit: 1.0		Carbon Dioxide (CO2) (ppm):	525		
Total Dissolved Gas (TDG) (ppm): 94676 Total Dissolved Combustible Gas (TDCG) (ppm): 877 Equivalent TCG (%): 0.2073 DGA Ratio Analysis: Heating to arcing gas ratios within normal limits. Diagnostics Comment: PCB Concentration (ppm): < 1.0 PPM EPA Method 8082¹ PCB Type (Arocolor): ND Reporting Limit: 1.0		Nitrogen (N2) (ppm):	63043		
Total Dissolved Combustible Gas (TDCG) (ppm): 877 Equivalent TCG (%): 0.2073 DGA Ratio Analysis: Heating to arcing gas ratios within normal limits. Diagnostics Comment: PCB Concentration (ppm): < 1.0 PPM EPA Method 8082¹ PCB Type (Arccolor): ND Reporting Limit: 1.0		Oxygen (O2) (ppm):	30231		
Equivalent TCG (%): 0.2073 DGA Ratio Analysis: Heating to arcing gas ratios within normal limits. Diagnostics Comment: PCB Concentration (ppm): < 1.0 PPM EPA Method 8082¹ PCB Type (Arocolor): ND Reporting Limit: 1.0	Total	Dissolved Gas (TDG) (ppm):	94676		
DGA Ratio Analysis: Heating to arcing gas ratios within normal limits. Diagnostics Comment: PCB Concentration (ppm): < 1.0 PPM EPA Method 8082¹ PCB Type (Arocolor): ND Reporting Limit: 1.0	Total Dissolved Com	bustible Gas (TDCG) (ppm):	877		
Diagnostics Comment: PCB Concentration (ppm): < 1.0 PPM EPA Method 8082¹ PCB Type (Arocolor): ND Reporting Limit: 1.0		Equivalent TCG (%):	0.2073		
Diagnostics Comment: PCB Concentration (ppm): < 1.0 PPM EPA Method 8082¹ PCB Type (Arocolor): ND Reporting Limit: 1.0	DGA	Ratio Analysis:	Heating to arcing g	as ratios within normal limits.	
Comment: PCB Concentration (ppm): < 1.0 PPM	Diagnostics	·			
EPA Method 8082¹ PCB Type (Arocolor): ND Reporting Limit: 1.0			•		
Reporting Limit: 1.0	PCB	Concentration (ppm):	< 1.0 PPM		
	EPA Method 8082 ¹	PCB Type (Arocolor):	ND		
Comment: DIELECTRIC REQUESTED AFTER CONTAINER PROCESSED, RESULTS MAYBE AFFECTED		Reporting Limit:	1.0		
	Comment: DIELECTRIC REQUESTED	AFTER CONTAINER PROCESSED, RE	SULTS MAYBE AFFECTE	D	

End of Test Report

Authorized By:

CHRISTINA SCALLY SENIOR CHEMIST

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