

Sunbelt Transformer Ltd
6301 SEVEN SEAS AVE.

BAKERSFIELD, CA 93308 US
ATTN: GILBERT GUERRERO
PO#: STEFINIE WHITMAN
Project ID:
Customer ID: TH03

Serial#: ST040159600
Location: 08R SS
Equipment: TRANSFORMER
Compartment: MAIN(BOTTOM)
Breathing: SEAL
Bank: Phase: 3
Fluid: MIN USGal: 4100

Mfr: SUNBELT
kV: 115
kVA: 10000
Year Mf'd:
Syringe ID: AL 564
Bottle ID: 564
Sampled By: T MANESS

Control#: 6725308
Order#: 458889
Account: 720
Received: 11/21/2014
Reported: 11/25/2014

Customer ID: 7733		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
Dissolved Gas Analysis (DGA)	Hydrogen (H2) (ppm):	4030	3592	1879	
ASTM	Methane (CH4) (ppm):	629	624	518	
D-3612 ¹	Ethane (C2H6) (ppm):	173	172	162	
	Ethylene (C2H4) (ppm):	123	123	114	
	Acetylene (C2H2) (ppm):	<1	<1	<1	
	Carbon Monoxide (CO) (ppm):	586	563	436	
	Carbon Dioxide (CO2) (ppm):	8045	8127	8019	
	Nitrogen (N2) (ppm):	79550	77553	75809	
	Oxygen (O2) (ppm):	<500	<500	4927	
	Total Dissolved Gas (TDG) (ppm):	93454	91175	91864	
	Total Dissolved Combustible Gas (TDCG) (ppm):	5541	5074	3109	
	Equivalent TCG (%):	8.6103	7.9715	4.4729	
DGA	DGA Keys Gas / Interpretive Method:	Hydrogen: Condition 4 Indications of severe partial discharge activity (1800 ppm).			
Diagnostics	PER IEEE C57.104-2008	Methane: Condition 3 Significant Indications of overheated (>150°C) oil (400 ppm).			
	(most recent sample)	Ethane: Condition 4 Indications of severely overheated (>250°C) oil (150 ppm).			
		Ethylene: Condition 3 Indications of significantly overheated (>350°C) oil (100 ppm).			
		Acetylene within condition 1 limits (1 ppm).			
		Carbon Monoxide: Condition 3 Indications of significantly overheated cellulose insulation (570 ppm).			
		Carbon Dioxide: Condition 3 Significant Indications of overheated cellulose insulation (4000 ppm).			
		TDCG: Condition 4 Levels indicate excessive decomposition. Exercise extreme caution (4630 ppm).			
	DGA TDCG Rate Interpretive Method:	Retest Daily.			
	PER IEEE C57.104-2008	Consider removal from service. Advise manufacturer.			
	(two most recent sample)				
	DGA Cellulose (Paper) Insulation:	CO2/CO >= 10: Indication of thermal decomposition of cellulose insulation.			
	WDS DGA Condition Code:	WARNING			
	WDS Recommended Action:	Exercise extreme caution. Resample immediately to confirm condition. Consider removal from service.			
Comment:					
General Oil Quality (GOQ)					
D-1533 ¹	Moisture in Oil (ppm):	17	6	7	
D-971 ¹	Interfacial Tension (dynes/cm):	37.35	37.98	38.26	
D-974 ¹	Acid Number (mg KOH/g):	0.007	0.010	0.011	
D-1500 ¹	Color Number (Relative):	L1.5	L1.5	L1.5	
D-1524 ¹	Visual Exam. (Relative):	H2O	CLR&SPRK	CLR&SPRK	
D-1524 ¹	Sediment Exam. (Relative):	ND	ND	ND	
D1816 ¹	Dielectric Breakdown 1 mm (kV mm-C):	12 (1-24C)	30 (1-25C)	33 (1-25C)	
D-924 ¹	Power Factor @ 25C (%):	0.026	0.019	0.021	

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 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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PO#: STEFINIE WHITMAN
Project ID:
Customer ID: TH03

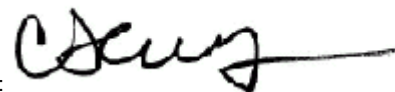
Serial#: ST040159600
Location: 08R SS
Equipment: TRANSFORMER
Compartment: MAIN(BOTTOM)
Breathing: SEAL
Bank: Phase: 3
Fluid: MIN USGal: 4100
Mfr: SUNBELT
kV: 115
kVA: 10000
Year Mf'd:
Syringe ID: AL 564
Bottle ID: 564
Sampled By: T MANESS

Control#: 6725308
Order#: 458889
Account: 720
Received: 11/21/2014
Reported: 11/25/2014

		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
GOQ Diagnostics		Moisture in Oil:	Acceptable for in-service oil (25 ppm max).		
PER IEEE C57.106-2006		Interfacial Tension:	Acceptable for in-service oil (30 dynes/cm min).		
(most recent sample)		Acid Number:	Acceptable for in-service oil (0.15 mg KOH/g max).		
		Color Number and Visual:	Diagnostic not applicable. 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	< 1.0 PPM	< 1.0 PPM
EPA Method 8082 ¹	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

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BAKERSFIELD, CA 93308 US
ATTN: GILBERT GUERRERO
PO#: STEFINIE WHITMAN

Project ID:

Customer ID: TH03-TAP CHANGER

Serial#: CA45142

Location: 08-SS

Equipment: LTC

Compartment: COMMON

Breathing: VENTED

Bank: Phase:

Fluid: MIN USGal: 147

Model: UNKNOWN

Mfr: ABB

kV: 12.47

kVA:

Year Mf'd: 2001

Syringe ID: AL 565

Bottle ID:

Sampled By: T MANESS

Control#: 6725312

Order#: 458889

Account: 720

Received: 11/21/2014

Reported: 11/25/2014

Lab Control Number:		6725312
Date Sampled:		11/19/2014
Order Number:		458889
Oil Temp:		
Dissolved Gas Analysis (DGA) ASTM D-3612 ¹	Hydrogen (H2) (ppm):	54
	Methane (CH4) (ppm):	18
	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 Diagnostics	Ratio Analysis:	Heating to arcing gas ratios within normal limits.
Comment:		
PCB EPA Method 8082 ¹	Concentration (ppm):	< 1.0 PPM
	PCB Type (Arocolor):	ND
	Reporting Limit:	1.0
Comment: DIELECTRIC REQUESTED AFTER CONTAINER PROCESSED, RESULTS MAYBE AFFECTED..		

End of Test Report

Authorized By:



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