WEIDMANN

WEIDMANN ELECTRICAL TECHNOLOGY

4407 HALIK ROAD SUITE E100 + PEARLAND, TX + 77581

(713) 595-1030 + (713) 595-1034 WWW.WEIDMANN-ELECTRICAL.COM TEST REPORT 01-7144885-565903-00

Page 1 of 2

 Serial#: 9422201-01
 Mfr: FAYETTEVILLE
 Control#: 7144885

Location:HOUSTONkV: 34.5Order#: 565903Equipment:TRANSFORMERkVA: 4000Account: 67

 Compartment:
 MAIN(BOTTOM)
 Year Mf'd:
 Received:
 07/02/2018

 Breathing:
 SEAL
 Syringe ID:
 54070064
 Reported:
 07/03/2018

Bank: Phase: 3 Bottle ID: 0143

Fluid: SIL USGal: 693 Sampled By: NATHAN LEECH

	Lab (Control Number:	7144885	6698131	5339178	5058831				
		Date Sampled:	06/29/2018	09/04/2014	04/25/2006	06/27/2003				
		Order Number:	565903	452884	160585	108338				
		Oil Temp:			20					
Dissolved Gas Analysis (DGA) Hydrogen (H2) (μL/L):		39	9	4	42					
ASTM	Metha	ne (CH4) (μL/L):	2	2	2	10				
D-3612 ¹	Ethan	ne (C2H6) (µL/L):	<1	<1	2	3				
	Ethylen	ne (C2H4) (µL/L):	<1	<1	1	1				
	Acetylen	ne (C2H2) (µL/L):	<1	<1	<1	<1				
	Carbon Monox	xide (CO) (μL/L):	35	24	14	239				
	Carbon Dioxi	ide (CO2) (μL/L):	3473	1857	2494	5891				
	Nitro	ogen (N2) (μL/L):	113303	103862	67477	93516				
	Оху	/gen (O2) (μL/L):	51083	45015	28915	43604				
	Total Dissolved G	as (TDG) (µL/L):	167935	150769	98909	143306				
Total Dissolved Combustible Gas (TDCG) (μL/L):		76	35	23	295					
	Equi	ivalent TCG (%):	0.0662	0.0261	0.0212	0.2114				
DGA	DGA Keys Gas / Inter	pretive Method:	Hydrogen within limi	ts (200 µL/L).						
Diagnostics	•	, ,	` ' '	00 uL/L C2H2 1 uL/L	_).					
			No indications of electrical arcing (H2 200 μL/L C2H2 1 μL/L). Carbon Monoxide within limits (3000 μL/L).							
	(mo:	st recent sample)	Carbon Monoxide w	ithin limits (3000 ul	Carbon Monoxide within limits (3000 μL/L). Carbon Monoxide and Carbon Dioxide within limits (33000 μL/L).					
	(mo	st recent sample)		` .	,	uL/L).				
	,		Carbon Monoxide ar	nd Carbon Dioxide	within limits (33000 µ	ıL/L).				
_	DGA TDCG Rate Inter	rpretive Method:	Carbon Monoxide ar	nd Carbon Dioxide	within limits (33000 µ	uL/L).				
_	DGA TDCG Rate Inter	rpretive Method: EE C57.146-2005	Carbon Monoxide ar	nd Carbon Dioxide	within limits (33000 µ	uL/L).				
	DGA TDCG Rate Inter PER IEE	rpretive Method: EE C57.146-2005 st recent sample)	Carbon Monoxide ar IEEE Guidelines not	nd Carbon Dioxide applicable for this	within limits (33000 p	ıL/L).				
_	DGA TDCG Rate Inter PER IEE	rpretive Method: EE C57.146-2005 st recent sample)	Carbon Monoxide ar	nd Carbon Dioxide applicable for this	within limits (33000 p	ıL/L).				
	DGA TDCG Rate Inter PER IEE (two mo	rpretive Method: EE C57.146-2005 st recent sample) aper) Insulation:	Carbon Monoxide ar IEEE Guidelines not	applicable for this	within limits (33000 plus) plus type.	,	eral Oil only.			
	DGA TDCG Rate Inter PER IEE (two mo	rpretive Method: EE C57.146-2005 st recent sample) aper) Insulation:	Carbon Monoxide ar IEEE Guidelines not CO2/CO Ratio not a	applicable for this	within limits (33000 plus) plus type.	,	eral Oil only.			
•	DGA TDCG Rate Inter PER IEE (two mode) DGA Cellulose (Page) WDS DGA (WDS Recome)	rpretive Method: EE C57.146-2005 st recent sample) aper) Insulation: Condition Code:	Carbon Monoxide ar IEEE Guidelines not CO2/CO Ratio not a	applicable for this	within limits (33000 plus) plus type.	,	eral Oil only.			
General Oil Quality (DGA TDCG Rate Inter PER IEE (two mo: DGA Cellulose (Pa WDS DGA (WDS Recom	rpretive Method: EE C57.146-2005 st recent sample) aper) Insulation: Condition Code: mended Action:	Carbon Monoxide ar IEEE Guidelines not CO2/CO Ratio not a WDS DGA Condition	applicable for this pplicable for this fluor Code & Recomm	within limits (33000 p fluid type. uid type. ended Action for Tra	,	eral Oil only.			
General Oil Quality (DGA TDCG Rate Inter PER IEE (two mode) DGA Cellulose (Page) WDS DGA (WDS Recome)	rpretive Method: EE C57.146-2005 st recent sample) aper) Insulation: Condition Code: mended Action: (mg/kg):	Carbon Monoxide ar IEEE Guidelines not CO2/CO Ratio not a WDS DGA Condition	applicable for this pplicable for this fluid Code & Recomm	within limits (33000 p fluid type. uid type. ended Action for Tra	,	eral Oil only.			
General Oil Quality (ASTM D-1533 ¹	DGA TDCG Rate Inter PER IEE (two mo: DGA Cellulose (Pa WDS DGA (WDS Recom	rpretive Method: EE C57.146-2005 st recent sample) aper) Insulation: Condition Code: mended Action: (mg/kg): (mg KOH/g):	Carbon Monoxide ar IEEE Guidelines not CO2/CO Ratio not a WDS DGA Condition 128 0.004	applicable for this pplicable for this fluence of the policies	within limits (33000 p fluid type. uid type. ended Action for Tra	,	eral Oil only.			
General Oil Quality (ASTM D-1533 ¹ ASTM D-974 ¹	DGA TDCG Rate Inter PER IEE (two mo DGA Cellulose (Pa WDS DGA (WDS Recom GOQ) Moisture in Oil Acid Number Color Number	rpretive Method: EE C57.146-2005 st recent sample) aper) Insulation: Condition Code: mended Action: (mg/kg):	Carbon Monoxide and IEEE Guidelines not a CO2/CO Ratio not a WDS DGA Condition 128 0.004 OFF-HUE60	applicable for this pplicable for this fluid Code & Recomm	within limits (33000 p fluid type. uid type. ended Action for Tra 15 0.003	,	eral Oil only.			
General Oil Quality (ASTM D-1533 ¹ ASTM D-974 ¹ ASTM D-2129 ¹	DGA TDCG Rate Inter PER IEE (two mo DGA Cellulose (Pa WDS DGA (WDS Recom GOQ) Moisture in Oil Acid Number	rpretive Method: EE C57.146-2005 st recent sample) aper) Insulation: Condition Code: mended Action: (mg/kg): (mg KOH/g):	Carbon Monoxide ar IEEE Guidelines not CO2/CO Ratio not a WDS DGA Condition 128 0.004 OFF-HUE60 PASS	applicable for this pplicable for this applicable for this fluid and Code & Recomm 93 0.008 OFF-HUE40 PASS	within limits (33000 p fluid type. uid type. ended Action for Tra	,	eral Oil only.			
General Oil Quality (ASTM D-1533 ¹ ASTM D-974 ¹ ASTM D-2129 ¹	DGA TDCG Rate Inter PER IEE (two mo DGA Cellulose (Pa WDS DGA (WDS Recom GOQ) Moisture in Oil Acid Number Color Number	rpretive Method: EE C57.146-2005 st recent sample) aper) Insulation: Condition Code: mended Action: (mg/kg): (mg KOH/g): (Pt-Co): (Relative):	Carbon Monoxide and IEEE Guidelines not a CO2/CO Ratio not a WDS DGA Condition 128 0.004 OFF-HUE60	applicable for this fluor Code & Recomm 93 0.008 OFF-HUE40	within limits (33000 p fluid type. uid type. ended Action for Tra 15 0.003	,	eral Oil only.			
General Oil Quality (ASTM D-1533 ¹ ASTM D-974 ¹ ASTM D-2129 ¹ ASTM D-1524 ¹	DGA TDCG Rate Inter PER IEE (two mo DGA Cellulose (Pa WDS DGA (WDS Recom GOQ) Moisture in Oil Acid Number Color Number	rpretive Method: EE C57.146-2005 st recent sample) aper) Insulation: Condition Code: mended Action: (mg/kg): (mg KOH/g): (Pt-Co):	Carbon Monoxide ar IEEE Guidelines not CO2/CO Ratio not a WDS DGA Condition 128 0.004 OFF-HUE60 PASS	applicable for this pplicable for this applicable for this fluid and Code & Recomm 93 0.008 OFF-HUE40 PASS	within limits (33000 plus plus plus plus plus plus plus plus	,	eral Oil only.			
General Oil Quality (ASTM D-1533 ¹ ASTM D-974 ¹ ASTM D-2129 ¹ ASTM D-1524 ¹	DGA TDCG Rate Inter PER IEE (two mo: DGA Cellulose (Pa WDS DGA (WDS Recom WDS Recom GOQ) Moisture in Oil Acid Number Color Number Visual Exam.	rpretive Method: EE C57.146-2005 st recent sample) aper) Insulation: Condition Code: mended Action: (mg/kg): (mg KOH/g): (Pt-Co): (Relative):	Carbon Monoxide and IEEE Guidelines not a WDS DGA Condition 128 0.004 OFF-HUE60 PASS CLR&BRIGHT	applicable for this pplicable for this pplicable for this fluid and Code & Recomm 93 0.008 OFF-HUE40 PASS CLR&BRIGHT	within limits (33000 p fluid type. sid type. ended Action for Tra 15 0.003 PASS CLR&BRIGHT	,	eral Oil only.			
General Oil Quality (ASTM D-1533 ¹ ASTM D-974 ¹ ASTM D-2129 ¹ ASTM D-1524 ¹ ASTM D-1524 ¹ ASTM D-877 ¹	DGA TDCG Rate Inter PER IEE (two mo: DGA Cellulose (Pa WDS DGA (WDS Recom WDS Recom GOQ) Moisture in Oil Acid Number Color Number Visual Exam. Sediment Exam.	rpretive Method: EE C57.146-2005 st recent sample) aper) Insulation: Condition Code: mended Action: (mg/kg): (mg KOH/g): (Pt-Co): (Relative):	Carbon Monoxide ar IEEE Guidelines not CO2/CO Ratio not a WDS DGA Condition 128 0.004 OFF-HUE60 PASS CLR&BRIGHT ND	applicable for this fluor Code & Recomm 93 0.008 OFF-HUE40 PASS CLR&BRIGHT TRACE	uithin limits (33000 p fluid type. uid type. ended Action for Tra 15 0.003 PASS CLR&BRIGHT ND	,	eral Oil only.			
General Oil Quality (ASTM D-1533 ¹ ASTM D-974 ¹ ASTM D-2129 ¹ ASTM D-1524 ¹ ASTM D-1524 ¹ ASTM D-877 ¹ ASTM D-1298	DGA TDCG Rate Inter PER IEE (two mo DGA Cellulose (Pa WDS DGA (WDS Recom WDS Recom GOQ) Moisture in Oil Acid Number Color Number Visual Exam. Sediment Exam. Dielectric Breakdown	rpretive Method: EE C57.146-2005 st recent sample) aper) Insulation: Condition Code: mended Action: (mg/kg): (mg KOH/g): (Pt-Co): (Relative): (kV): (g/mL):	Carbon Monoxide and IEEE Guidelines not IEEE Guidelines not IEEE Guidelines not and IEEE Guidelines no	pplicable for this fluor code & Recomm 93 0.008 OFF-HUE40 PASS CLR&BRIGHT TRACE 42 0.9653	uithin limits (33000 p fluid type. uid type. ended Action for Tra 15 0.003 PASS CLR&BRIGHT ND 46 0.969	,	eral Oil only.			
General Oil Quality (ASTM D-1533 ¹ ASTM D-974 ¹ ASTM D-2129 ¹ ASTM D-1524 ¹ ASTM D-1524 ¹ ASTM D-877 ¹ ASTM D-1298 ASTM D-4052 ¹	DGA TDCG Rate Inter PER IEE (two mo DGA Cellulose (Pa WDS DGA (WDS Recome) WDS Recome GOQ) Moisture in Oil Acid Number Color Number Visual Exam. Sediment Exam. Dielectric Breakdown Density @15°C	rpretive Method: EE C57.146-2005 st recent sample) aper) Insulation: Condition Code: mended Action: (mg/kg): (mg KOH/g): (Pt-Co): (Relative): (kV): (g/mL): (g/mL): Moisture in Oil:	Carbon Monoxide and IEEE Guidelines not a IEEE Guidelines not a WDS DGA Condition 128 0.004 OFF-HUE60 PASS CLR&BRIGHT ND 47 0.9632 Exceeds limit for in-sections	pplicable for this fluor code & Recomm 93 0.008 OFF-HUE40 PASS CLR&BRIGHT TRACE 42 0.9653 service oil (100 mg/s	uithin limits (33000 p fluid type. uid type. ended Action for Tra 15 0.003 PASS CLR&BRIGHT ND 46 0.969	,	eral Oil only.			
General Oil Quality (ASTM D-1533 ¹ ASTM D-974 ¹ ASTM D-2129 ¹ ASTM D-1524 ¹ ASTM D-1524 ¹ ASTM D-877 ¹ ASTM D-1298 ASTM D-4052 ¹ GOQ Diagnostics	DGA TDCG Rate Inter PER IEE (two mo DGA Cellulose (Pa WDS DGA (WDS Recom GOQ) Moisture in Oil Acid Number Color Number Visual Exam. Sediment Exam. Dielectric Breakdown Density @15°C Density @15°C	rpretive Method: EE C57.146-2005 st recent sample) aper) Insulation: Condition Code: mended Action: (mg/kg): (mg KOH/g): (Pt-Co): (Relative): (kV): (g/mL): (g/mL): Moisture in Oil:	Carbon Monoxide and IEEE Guidelines not IEEE Guidelines not IEEE Guidelines not and IEEE Guidelines no	pplicable for this fluor code & Recomm 93 0.008 OFF-HUE40 PASS CLR&BRIGHT TRACE 42 0.9653 service oil (100 mg/s	uithin limits (33000 p fluid type. uid type. ended Action for Tra 15 0.003 PASS CLR&BRIGHT ND 46 0.969	,	eral Oil only.			
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General Oil Quality (ASTM D-1533 ¹ ASTM D-974 ¹ ASTM D-2129 ¹ ASTM D-1524 ¹ ASTM D-1524 ¹ ASTM D-877 ¹ ASTM D-1298 ASTM D-4052 ¹ GOQ Diagnostics	DGA TDCG Rate Inter PER IEE (two mo: DGA Cellulose (Pa WDS DGA (WDS Recom WDS Recom GOQ) Moisture in Oil Acid Number Color Number Visual Exam. Sediment Exam. Dielectric Breakdown Density @15°C Density @15°C	rpretive Method: EE C57.146-2005 st recent sample) aper) Insulation: Condition Code: mended Action: (mg/kg): (mg KOH/g): (Pt-Co): (Relative): (kV): (g/mL): (g/mL): Acid Number: nber and Visual:	Carbon Monoxide and IEEE Guidelines not a IEEE Guidelines not a WDS DGA Condition 128 0.004 OFF-HUE60 PASS CLR&BRIGHT ND 47 0.9632 Exceeds limit for in-selection	applicable for this policable for this policable for this fluid applicable for this fluid applic	within limits (33000 programmer) fluid type. ended Action for Tra 15 0.003 PASS CLR&BRIGHT ND 46 0.969 (kg max). OH/g max). table for in-service of	nsformers with Min	eral Oil only.			
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Comment: General Oil Quality (ASTM D-1533¹ ASTM D-974¹ ASTM D-2129¹ ASTM D-1524¹ ASTM D-1524¹ ASTM D-877¹ ASTM D-1298 ASTM D-1298 ASTM D-4052¹ GOQ Diagnostics PER IEEE C57.111-1¹ (most recent sample) Comment: PCB	DGA TDCG Rate Inter PER IEE (two mo DGA Cellulose (Pa WDS DGA (WDS Recome GOQ) Moisture in Oil Acid Number Color Number Visual Exam. Dielectric Breakdown Density @15°C Density @15°C	rpretive Method: EE C57.146-2005 st recent sample) aper) Insulation: Condition Code: mended Action: (mg/kg): (mg KOH/g): (Pt-Co): (Relative): (kV): (g/mL): (g/mL): Acid Number: nber and Visual:	Carbon Monoxide ar IEEE Guidelines not CO2/CO Ratio not a WDS DGA Condition 128 0.004 OFF-HUE60 PASS CLR&BRIGHT ND 47 0.9632 Exceeds limit for in-set Diagnostic not applic	applicable for this policable for this policable for this fluid applicable for this fluid applic	within limits (33000 programmer) fluid type. ended Action for Tra 15 0.003 PASS CLR&BRIGHT ND 46 0.969 (kg max). OH/g max). table for in-service of	nsformers with Min	eral Oil only.			

Notations: 1. Analysis is ISO/IEC 17025:2005 accredited, L-A-B Accredited Certificate Number L2303.04 2. This test is conducted by a subcontracted laboratory. 3. Subcontracted laboratory has received ISO Standard 17025 accreditation for this test. 4. TEST RESULTS MEET NELAP REQUIREMENTS, TCEQ CERTIFICATE NO. T104704442-18-9 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 Electrical Technology accepts no responsibility for these results; accreditation status does not apply to these results. 8. Imported Equipment 10. mg/kg , µg/mL, µL/L = ppm, µg/L = ppb, mN/m = dynes/cm, mm²/s = cSt

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 Electrical Technology 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 Electrical Technology. WEIDMANN Electrical Technology 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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Order Number:	565903	452884	160585	108338	
Oil Temp:			20		
Reporting Limit:	1	1			·
Comment:					

End of Test Report

Authorized By:

ORLANDO GONZALEZ CHEMIST

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