



Date: December 7, 2022
To: All Vendors
Subject: Addendum #1

REFERENCE: P 012-23 SUBSTATION POWER TRANSFORMER FIELD SERVICE TO REMOVE, DISPOSE, & REPLACE CORROSIVE OIL

This Addendum forms part of the contract and clarifies, corrects or modifies original proposal document.

Question 1: The bid documents refer to achieving a desired schedule and period of performance. What is the target start date for this work? I see the award is expected by end of February, 2023, but there is no period of performance listed after that. Please advise.

Answer 1: The targeted start date is the first week of April 2023 and to be completed by May 2023 in order prevent ERCOT summer restriction outages. If the work can't be completed before May 2023, then it could be postponed until October 2023.

Question 2: What is the outage duration availability for each transformer? Are there any limitations on how long each transformer can be offline to perform this work?

Answer 2: We anticipate at least a week (seven concurrent days) of outage for each transformer. The limitations would be based on ERCOT's emergency restoration, if needed.

Question 3: Will the transformers be taken offline consecutively?

Answer 3: Yes, they could be taken off consecutively.

Question 4: If they can be done consecutively on one mobilization, is it reasonable to allow just one day between units for switching/isolations?

Answer 4: Yes, at least one day would be needed for switching and equipment isolation.

Question 5: Will contractors be able to work 24/7, or will there be limitations to site access, such as weekend closures, etc.?

Answer 5: Yes, contractors would be allowed to work around the clock if needed, and BPUB will have staff available. Switching and equipment isolation would ONLY take place during day-time hours, unless in cases of an emergency.

Question 6: The scope of work refers to replacing gaskets as needed, and ensuring no leaks. Do any of these transformers have present known leaks? Or are you specifically only referring to replacement of any gaskets disturbed/opened during the work scope?

Answer 6: The transformers are leak free now. We are referring to the replacement of gaskets opened during the work scope.

Question 7: Does BPUB have a preference for a specific passivator brand/product they prefer for this work based on past experience?

Answer 7: BPUB does not have a preference, and the recommended passivator are: Cobratec 99 (BTA), DSI Sulfur Inhibitor-liquid concentrate, Nynass Nypass-10% liquid concentrate. Contractor must first get approval from BPUB and supply a copy of the chemical Safety Data Sheet (SDS) for BPUB review.

Question 8: Can BPUB provide oil diagnostics history for these transformers please? This would include corrosive sulfur as well as PCB (PCB is necessary to know before any transport and disposal can take place). As well, a copy of oil quality and DGA data, so that we can see baseline oil conditions for each transformer before removing oil.

Answer 8: Yes, BPUB can provide oil diagnostics as needed. The latest oil analysis was done in July 2022. See attachments.

Question 9: Would furans results be available for these transformers (ASTM D-5837)?

Answer 9: Yes, Furan results are part of the latest oil analysis.

The signature of the company agent, for the acknowledgement of this addendum, shall be required. **Complete information below and return via e-mail to: hlopez@brownsville-pub.com or e-fax (956) 574-6109.**

I hereby acknowledge receipt of this addendum.

Company: _____
Agent Name: _____
Agent Signature: _____
Address: _____
City: _____ **State:** _____ **Zip:** _____
Phone Number: _____ **E-mail address:** _____

If you have any further questions about the Proposal, call 956-983-6375.

Hugo E. Lopez
BY: Hugo E. Lopez
Purchasing

Customer 0554000 Brownsville Public Utilities
Sub-Name POWER PLANT

City Brownsville, TX
Unit No. 10

Location OUTDOOR/GROUND
Other

NAMEPLATE DATA

Manufacturer	GE PROEC	Equipment Type	TRANSFORMER
Manufacture Date	11/1/2003	Transformer Class	ONAN/ONAF
Serial No.	G1230-01	Impedance %	9.48
KVA Rating	36,000	Phase/Cycle	3/60
High Voltage	138,000 Y	Liquid Type	OIL
Low Voltage	69,000 D	Gallons	6,850
Weight	77,920	Other Access	TOP INSPECTION PLATE

ADDITIONAL EQUIPMENT

Radiators	Yes	Conservator Tank	No
Fans	Yes	LTC Compartment	No
Water Cooled	No	Bushing Location	TOP
Oil Pumps	No	Breather	N2 SYSTEM
Top FPV (inch)	1.00 Valve	Hose Length (feet)	200
Bottom FPV (inch)	2.00 Valve	Service Online	Yes
InsulationType	55/65C	Power Available	Yes

VISUAL INSPECTION

DATE	LEVEL	SAMPLE TEMP	TOP TEMP	P/V	PAINT	LEAKS
06/25/19	NORMAL	26	40	1.50	GOOD	
06/25/20	NORMAL	33	40	2.00	GOOD	NONE
06/11/21	NORMAL	33	48	3.50	FAIR	NONE
06/08/22	NORMAL	34	52	3.00	GOOD	NONE

FIELD SERVICE

DATE SERVICE

Additional Information 6/8/2022 8:08:00 PM CORROSIVE SULFUR TEST (48 HRS. @ 150 C): CORROSIVE 4b

Reason Not Tested

LIQUID SCREEN TEST DATA

DATE	SERVICE	ACID	IFT	DIEL 877	DIEL 1816	GAP	COLOR	SP. GRAV.	VISUAL	SEDIMENT
05/20/11		0.020 AC	41.0 AC	46 AC			0.50 AC	0.890 AC	CLEAR AC	NONE AC
05/24/12		0.020 AC	41.0 AC	36 AC			0.50 AC	0.890 AC	CLEAR AC	NONE AC
05/01/13		0.010 AC	40.3 AC	44 AC			0.50 AC	0.880 AC	CLEAR AC	NONE AC
06/29/18		0.010 AC	41.6 AC	36 AC			0.50 AC	0.890 AC	CLEAR AC	NONE AC
06/25/19		0.020 AC	40.9 AC	30 AC			0.50 AC	0.880 AC	CLEAR AC	NONE AC
06/25/20		0.020 AC	39.8 AC	38 AC			0.50 AC	0.890 AC	CLEAR AC	NONE AC
06/11/21		0.010 AC	39.0 AC	42 AC			0.50 AC	0.880 AC	CLEAR AC	NONE AC
06/08/22		0.020 AC	37.4 AC	47 AC			1.00 AC	0.884 AC	CLEAR AC	NONE AC

INHIBITOR CONTENT

DATE	PCT. BY WEIGHT
10/25/06	<0.02% UN

NOTE - THIS UNIT HAS A BLADDER OR CONTINUOUS N2 SYSTEM. THEREFORE, THE UNIT DOES NOT REQUIRE INHIBITED OIL. HOWEVER, HAVING INHIBITED OIL WILL PROVIDE ADDITIONAL PROTECTION AGAINST OIL OXIDATION IF THE CURRENT OIL PRESERVATION SYSTEM WERE TO EVER FAIL.

LIQUID POWER FACTOR

DATE	25 C	100 C
06/29/18	0.016 AC	0.273 AC
06/25/19	0.016 AC	0.360 AC
06/25/20	0.014 AC	0.318 AC
06/11/21	0.001 AC	0.117 AC
06/08/22	0.007 AC	0.498 AC

KEY TO ABBREVIATIONS: AC - ACCEPTABLE QU - QUESTIONABLE UN - UNACCEPTABLE RS - RESAMPLE

NOTE: * After a result indicates that the test or service was performed by an outside source.

Customer 0554000 Brownsville Public Utilities
Sub-Name POWER PLANT
Location OUTDOOR/GROUND

S/N G1230-01
Mfg. GE PROEC
Unit No. 10

Gallons 6,850
KVA 36,000
High Volt. 138,000
Low Volt. 69,000

KARL FISCHER TESTING MOISTURE CONTENT EXPRESSED IN PPM

DATE	AVG.		PCT.		MOISTURE BY DRY
	TEMP	PPM	SATURATION		WEIGHT PCT.
06/29/18	40	7	5.8	AC	0.50
06/25/19	31	8	9.3	QU	0.99
06/25/20	38	9	7.6	AC	0.70
06/11/21	38	4	3.1	AC	0.29
06/08/22	39	14	11.7	QU	1.05

RECOMMENDATION RETEST 6 MONTHS

The moisture content has increased and is now questionable. A shorter test interval is recommended to monitor this unit. Retest for moisture when the load and temperature of the unit are as stable as possible.

FURAN ANALYSIS EXPRESSED IN PPB

DATE	5H2F	2FOL	2FAL	2ACF	5M2F	TOTAL
05/01/13	ND	ND	4	ND	ND	4
06/29/18	ND	ND	1	ND	ND	1
06/25/19	ND	ND	1	ND	ND	1
06/25/20	ND	ND	11	ND	ND	11
06/11/21	ND	ND	5	ND	ND	5
06/08/22	ND	ND	9	ND	ND	9

RECOMMENDATION RETEST 1 YEAR

NO DIAGNOSTIC CHANGES ARE NOTED IN FURAN LEVELS SINCE THE PREVIOUS ANALYSIS. THE CELLULOSIC INSULATION APPEARS TO BE IN GOOD CONDITION.

CALCULATED DP 800 **EST. LIFE REMAINING** 100%

GAS-IN-OIL ANALYSIS GAS CHROMATOGRAPHY EXPRESSED IN PPM

DATE	HYDROGEN	OXYGEN	NITROGEN	METHANE	CARBON		ETHANE	ETHYLENE	ACETYLENE	TOTAL COMBUST.	TOTAL GAS
					MONOXIDE	DIOXIDE					
05/24/12	ND	2,996	61,699	6	19	1,265	13	3	ND	41	66,001
05/01/13	4	9,237	76,997	7	14	1,478	24	1	ND	50	87,762
06/29/18	ND	130	89,814	6	10	1,434	18	2	ND	36	91,414
06/25/19	ND	740	59,146	3	12	1,005	14	ND	ND	29	60,920
06/25/20	ND	417	88,010	6	11	1,668	17	1	ND	35	90,130
06/11/21	5	47	77,783	5	8	1,460	16	1	ND	35	79,325
06/08/22	ND	74	72,759	6	4	565	14	3	ND	27	73,425

RECOMMENDATION RETEST 1 YEAR

B-THE ANALYSIS OF THIS SAMPLE SHOWS NO SIGNIFICANT INCREASE IN THE COMBUSTIBLE GAS VOLUME. THIS INDICATES NORMAL OPERATION.

ICP METALS-IN-OIL EXPRESSED IN PPM

DATE	ALUMINUM	IRON	COPPER
06/02/05	<0.1	<0.03	<0.01
10/25/06	<0.1	<0.03	0.03
05/20/11	<0.1	<0.03	<0.01
05/24/12	<0.1	<0.03	<0.01
05/01/13	<0.1	<0.03	0.04

RECOMMENDATION RETEST 1 YEAR

THERE HAS BEEN NO DIAGNOSTIC CHANGE SINCE THE PREVIOUS ANALYSIS. THESE DATA INDICATE NORMAL OPERATION.

PCB CONTENT EXPRESSED IN PPM

DATE	1242	1254	1260	OTHER	TOTAL
05/20/11	ND	ND	ND	ND	ND
05/24/12	ND	ND	ND	ND	ND
05/01/13	ND	ND	ND	ND	ND
06/25/20	ND	ND	ND	ND	ND
06/11/21	ND	ND	ND	ND	ND
06/08/22	2	ND	ND	ND	2

COLOR LABEL: Green **CLASS:** NON-PCB

Results in mg/kg
 ND means None Detected
 (<2 mg/kg per ASTM D4059)

Customer 0554000 Brownsville Public Utilities
Sub-Name PRICE RD SUB

City Brownsville, TX
Unit No. T1

Location OUTDOOR/GROUND
Other

NAMEPLATE DATA

Manufacturer	GE PROLEC	Equipment Type	TRANSFORMER
Manufacture Date	10/1/2004	Transformer Class	ONAN/ONAF
Serial No.	G1406-03	Impedance %	9.68
KVA Rating	28,000	Phase/Cycle	3/60
High Voltage	138,000	Liquid Type	OIL
Low Voltage	12,470	Gallons	5,250
Weight	130,645	Other Access	TOP INSPECTION PLATE

ADDITIONAL EQUIPMENT

Radiators	Yes	Conservator Tank	No
Fans	Yes	LTC Compartment	Yes
Water Cooled	No	Bushing Location	TOP
Oil Pumps	No	Breather	N2 SYSTEM
Top FPV (inch)	1.00 Valve	Hose Length (feet)	100
Bottom FPV (inch)	2.00 Valve	Service Online	Yes
InsulationType	55/65C	Power Available	Yes

VISUAL INSPECTION

DATE	LEVEL	SAMPLE TEMP	TOP TEMP	P/V	PAINT	LEAKS
06/27/19	NORMAL	32	45	1.50	FAIR	
06/22/20	NORMAL	32	53	2.50	FAIR	NONE
06/07/21	NORMAL	32	48	2.50	FAIR	NONE
06/07/22	NORMAL	32	47	2.00	FAIR	NONE

FIELD SERVICE

DATE SERVICE

Additional Information 6/7/2022 10:21:00 AM CORROSIVE SULFUR TEST (48 HRS. @ 150 C): CORROSIVE 4a

Reason Not Tested

LIQUID SCREEN TEST DATA

DATE	SERVICE	ACID	IFT	DIEL 877	DIEL 1816	GAP	COLOR	SP. GRAV.	VISUAL	SEDIMENT
05/24/12		0.010 AC	39.9 AC	36 AC			0.50 AC	0.890 AC	CLEAR AC	NONE AC
05/01/13		0.020 AC	39.4 AC	46 AC			0.50 AC	0.890 AC	CLEAR AC	NONE AC
08/14/13		0.020 AC	39.8 AC	40 AC			0.50 AC	0.890 AC	CLEAR AC	NONE AC
06/25/18		0.020 AC	39.2 AC	38 AC			0.75 AC	0.890 AC	CLEAR AC	NONE AC
06/27/19		0.020 AC	39.1 AC	36 AC			0.50 AC	0.890 AC	CLEAR AC	NONE AC
06/22/20		0.020 AC	39.3 AC	47 AC			0.50 AC	0.890 AC	CLEAR AC	NONE AC
06/07/21		0.010 AC	39.0 AC	46 AC			0.50 AC	0.880 AC	CLEAR AC	NONE AC
06/07/22		0.020 AC	37.9 AC	55 AC			0.50 AC	0.894 AC	CLEAR AC	NONE AC

INHIBITOR CONTENT

DATE	PCT. BY WEIGHT
10/25/06	<0.02% UN
08/14/13	<0.02% UN

NOTE - THIS UNIT HAS A BLADDER OR CONTINUOUS N2 SYSTEM. THEREFORE, THE UNIT DOES NOT REQUIRE INHIBITED OIL. HOWEVER, HAVING INHIBITED OIL WILL PROVIDE ADDITIONAL PROTECTION AGAINST OIL OXIDATION IF THE CURRENT OIL PRESERVATION SYSTEM WERE TO EVER FAIL.

LIQUID POWER FACTOR

DATE	25 C	100 C
06/25/18	0.007 AC	0.182 AC
06/27/19	0.015 AC	0.621 AC
06/22/20	0.008 AC	0.271 AC
06/07/21	0.001 AC	0.178 AC
06/07/22	0.030 AC	0.279 AC

KEY TO ABBREVIATIONS: AC - ACCEPTABLE QU - QUESTIONABLE UN - UNACCEPTABLE RS - RESAMPLE

NOTE: * After a result indicates that the test or service was performed by an outside source.

Customer 0554000 Brownsville Public Utilities
Sub-Name PRICE RD SUB
Location OUTDOOR/GROUND

S/N G1406-03
Mfg. GE PROLEC
Unit No. T1

Gallons 5,250
KVA 28,000
High Volt. 138,000
Low Volt. 12,470

KARL FISCHER TESTING MOISTURE CONTENT EXPRESSED IN PPM

DATE	AVG.		PCT.		MOISTURE BY DRY	
	TEMP	PPM	SATURATION	AC	WEIGHT PCT.	
08/14/13	45	11	7.6	AC	0.58	
06/25/18	41	5	4.0	AC	0.34	
06/27/19	37	9	7.8	AC	0.76	
06/22/20	37	7	6.0	AC	0.58	
06/07/21	37	7	6.5	AC	0.62	
06/07/22	37	2	1.8	AC	0.18	

RECOMMENDATION RETEST 1 YEAR

The moisture content continues to be acceptable based on the equipment and liquid type. Continued normal monitoring is indicated.

FURAN ANALYSIS EXPRESSED IN PPB

DATE	5H2F	2FOL	2FAL	2ACF	5M2F	TOTAL
08/14/13	ND	ND	2	ND	ND	2
06/25/18	ND	ND	1	ND	ND	1
06/27/19	ND	ND	1	ND	ND	1
06/22/20	ND	ND	9	ND	ND	9
06/07/21	ND	ND	6	ND	ND	6
06/07/22	ND	ND	2	ND	ND	2

RECOMMENDATION RETEST 1 YEAR

NO DIAGNOSTIC CHANGES ARE NOTED IN FURAN LEVELS SINCE THE PREVIOUS ANALYSIS. THE CELLULOSIC INSULATION APPEARS TO BE IN GOOD CONDITION.

CALCULATED DP 800 **EST. LIFE REMAINING** 100%

GAS-IN-OIL ANALYSIS GAS CHROMATOGRAPHY EXPRESSED IN PPM

DATE	HYDROGEN	OXYGEN	NITROGEN	METHANE	CARBON		ETHANE	ETHYLENE	ACETYLENE	TOTAL COMBUST.	TOTAL GAS
					MONOXIDE	DIOXIDE					
05/24/12	10	2,904	70,326	27	22	851	104	6	ND	169	74,250
05/01/13	8	9,486	79,670	35	27	1,080	151	10	ND	231	90,467
08/14/13	5	573	68,967	45	40	1,336	148	15	ND	253	71,129
06/25/18	ND	142	82,821	16	11	955	89	5	ND	121	84,039
06/27/19	ND	38	90,204	21	9	1,503	139	5	ND	174	91,919
06/22/20	ND	363	84,370	19	13	1,353	115	6	ND	153	86,239
06/07/21	ND	179	74,561	12	6	1,079	87	4	ND	109	75,928
06/07/22	1	64	77,571	11	4	1,081	85	4	ND	105	78,821

RECOMMENDATION RETEST 1 YEAR

B-THE ANALYSIS OF THIS SAMPLE SHOWS NO SIGNIFICANT INCREASE IN THE COMBUSTIBLE GAS VOLUME. THIS INDICATES NORMAL OPERATION.

ICP METALS-IN-OIL EXPRESSED IN PPM

DATE	ALUMINUM	IRON	COPPER
06/02/05	<0.1	<0.03	<0.01
10/25/06	<0.1	<0.03	0.03
05/20/11	<0.1	<0.03	<0.01
05/24/12	<0.1	<0.03	<0.01
05/01/13	<0.1	<0.03	0.04
08/14/13	<0.1	<0.03	0.04

RECOMMENDATION RETEST 1 YEAR

THERE HAS BEEN NO DIAGNOSTIC CHANGE SINCE THE PREVIOUS ANALYSIS. THESE DATA INDICATE NORMAL OPERATION.

PCB CONTENT EXPRESSED IN PPM

DATE	1242	1254	1260	OTHER	TOTAL
05/20/11	ND	ND	ND	ND	ND
05/24/12	ND	ND	ND	ND	ND
05/01/13	ND	ND	ND	ND	ND
06/22/20	ND	ND	ND	ND	ND
06/07/21	ND	ND	ND	ND	ND
06/07/22	2	ND	ND	ND	2

COLOR LABEL: Green **CLASS:** NON-PCB

Results in mg/kg
 ND means None Detected
 (<2 mg/kg per ASTM D4059)

Customer 0554000 Brownsville Public Utilities
Sub-Name PRICE RD SUB

City Brownsville, TX
Unit No. T1

Location OUTDOOR/GROUND
Other EQUIP: MOTC

NAMEPLATE DATA

Equipment Type LOAD TAP CHANGER
Manufacturer
Serial No.
LTC Model No.
LTC for TC No. 318

Liquid Type OIL
LTC Gallons 268.00
Selector Gallons 279.00
Transfer/Diverter Gallons

ADDITIONAL EQUIPMENT

Conservator Tank No
Silica Gel Yes
Breather FREE/DESICCA
Top FPV (inch) 0.50 Plug
Bottom FPV (inch) 1.00 Valve

VISUAL INSPECTION

DATE	LEVEL	SAMPLE TEMP	TOP TEMP	P/V	PAINT	Tap Counter Reading	LEAKS
06/27/19	NORMAL	36	45	1.50	FAIR	194484	
06/22/20	NORMAL	31			FAIR	247971	NONE
06/07/21	NORMAL	38			FAIR	248859	NONE
06/07/22	NORMAL	36	57		FAIR	256078	NONE

FIELD SERVICE

DATE SERVICE

Additional Information 6/7/2022 10:21:00 AM CORROSIVE SULFUR TEST (48 HRS. @ 150 C): CORROSIVE 4b

Reason Not Tested

LIQUID SCREEN TEST DATA

DATE	SERVICE	ACID	IFT	DIEL 877	DIEL 1816	GAP	COLOR	SP. GRAV.	VISUAL	SEDIMENT
05/01/13		0.050 AC	33.0 AC	39 AC			1.50 AC	0.890 AC	CLEAR AC	NONE AC
06/25/18		0.050 AC	32.5 AC	53 AC			2.00 AC	0.890 AC	CLEAR AC	NONE AC
06/27/19		0.070 QU	30.8 QU	42 AC			2.00 AC	0.890 AC	CLEAR AC	NONE AC
06/22/20		0.090 QU	31.4 QU	40 AC			2.00 AC	0.890 AC	CLEAR AC	NONE AC
06/07/21		0.060 QU	34.4 AC	36 AC			2.00 AC	0.880 AC	CLEAR AC	NONE AC
06/07/22		0.090 QU	32.3 AC	55 AC			2.50 AC	0.874 AC	CLEAR AC	NONE AC

INHIBITOR CONTENT

DATE	PCT. BY WEIGHT
10/25/06	<0.02% UN

NOTE - STUDIES SHOW THAT A LEVEL OF 0.3% INHIBITOR IS OPTIMUM FOR PRESERVATION OF IN-SERVICE TRANSFORMER OILS. OILS WITH A LEVEL BELOW 0.08% ARE CONSIDERED TO BE UNINHIBITED.

LIQUID POWER FACTOR

DATE	25 C	100 C
05/01/13	0.041	1.106
06/25/18	0.082	1.540
06/27/19	0.054	1.230
06/22/20	0.041	1.930
06/07/21	0.024	1.080

KEY TO ABBREVIATIONS: AC - ACCEPTABLE QU - QUESTIONABLE UN - UNACCEPTABLE RS - RESAMPLE

NOTE: * After a result indicates that the test or service was performed by an outside source.

Customer 0554000 Brownsville Public Utilities
Sub-Name PRICE RD SUB
Location OUTDOOR/GROUND

S/N
Mfg.
Unit No. T1

Gallons 268
KVA

High Volt.
Low Volt.

KARL FISCHER TESTING MOISTURE CONTENT EXPRESSED IN PPM

DATE	AVG.		PCT.		MOISTURE BY DRY
	TEMP	PPM	SATURATION	QU	WEIGHT PCT.
06/25/18	46	59	N/A	QU	N/A
06/27/19	41	48	N/A	QU	N/A
06/22/20	36	43	N/A	QU	N/A
06/07/21	43	46	N/A	QU	N/A
06/07/22	41	73	N/A	UN	N/A

RECOMMENDATION RETEST 3 MONTHS

The moisture content has increased and is now unacceptable. A shorter test interval is recommended to monitor this unit and to confirm this result.

FURAN ANALYSIS EXPRESSED IN PPB

DATE	5H2F	2FOL	2FAL	2ACF	5M2F	TOTAL
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GAS-IN-OIL ANALYSIS GAS CHROMATOGRAPHY EXPRESSED IN PPM

DATE	HYDROGEN	OXYGEN	NITROGEN	METHANE	CARBON		ETHANE	ETHYLENE	ACETYLENE	TOTAL COMBUST.	TOTAL GAS
					MONOXIDE	DIOXIDE					
06/02/05	9	28,916	64,098	2	13	453	2	6	1	33	93,500
06/25/18	12	24,839	63,626	ND	47	1,446	2	2	ND	63	89,974
06/27/19	ND	28,037	73,767	3	98	2,722	ND	3	ND	104	104,630
06/22/20	18	24,449	71,520	3	147	1,832	1	4	ND	173	97,974
06/07/21	ND	29,475	69,247	2	40	2,669	1	3	ND	46	101,437
06/07/22	27	26,469	67,836	2	58	2,927	1	2	ND	90	97,322

RECOMMENDATION IMMED. RETEST (DUE TO PRCL CNT)

B-THE ANALYSIS OF THIS SAMPLE SHOWS NO SIGNIFICANT INCREASE IN THE COMBUSTIBLE GAS VOLUME. THIS INDICATES NORMAL OPERATION.

ICP METALS-IN-OIL EXPRESSED IN PPM

DATE	ALUMINUM	IRON	COPPER
06/02/05	<0.1	<0.03	<0.01
10/25/06	<0.1	<0.03	<0.01
06/25/18	<0.1	<0.03	<0.01
06/27/19	<0.1	<0.03	0.01
06/22/20	<0.1	<0.03	0.01
06/07/21	<0.1	<0.03	0.02

RECOMMENDATION

NO RECOMMENDATION IS POSSIBLE FOR THIS SAMPLE. WE ARE UNAWARE OF ANY PARAMETERS OR GUIDANCE THAT WOULD ENABLE US TO INTERPRET THESE RESULTS OR DETERMINE AN APPROPRIATE MONITORING SCHEDULE.

PCB CONTENT EXPRESSED IN PPM

DATE	1242	1254	1260	OTHER	TOTAL
06/22/20	ND	ND	ND	ND	ND
06/07/21	ND	ND	ND	ND	ND

COLOR LABEL: Green **CLASS:** NON-PCB

Results in mg/kg
 ND means None Detected
 (<2 mg/kg per ASTM D4059)

Customer 0554000 Brownsville Public Utilities
Sub-Name PRICE RD SUB

City Brownsville, TX
Unit No. T2

Location OUTDOOR/GROUND
Other

NAMEPLATE DATA

Manufacturer	KUHLMAN	Equipment Type	TRANSFORMER
Manufacture Date	1/1/2003	Transformer Class	OA/FA/FA
Serial No.	322706-02-2	Impedance %	9.30
KVA Rating	150,000	Phase/Cycle	3/60
High Voltage	138,000 D	Liquid Type	OIL
Low Voltage	12,470 Y	Gallons	6,690
Weight	132,668	Other Access	TOP INSPECTION PLATE

ADDITIONAL EQUIPMENT

Radiators	Yes	Conservator Tank	No
Fans	Yes	LTC Compartment	Yes
Water Cooled	No	Bushing Location	TOP
Oil Pumps	No	Breather	N2 SYSTEM
Top FPV (inch)	1.00 Valve	Hose Length (feet)	150
Bottom FPV (inch)	2.00 Valve	Service Online	Yes
InsulationType	55/65C	Power Available	Yes

VISUAL INSPECTION

DATE	LEVEL	SAMPLE TEMP	TOP TEMP	P/V	PAINT	LEAKS
06/27/19	NORMAL	30	45	1.50	FAIR	
06/22/20	NORMAL	29	40	1.00	FAIR	NONE
06/07/21	NORMAL	34	46	1.50	FAIR	NONE
06/07/22	NORMAL	30	44	1.00	FAIR	NONE

FIELD SERVICE

DATE SERVICE

Additional Information 6/7/2022 10:22:00 AM CORROSIVE SULFUR TEST (48 HRS. @ 150 C): CORROSIVE 4a

Reason Not Tested

LIQUID SCREEN TEST DATA

DATE	SERVICE	ACID	IFT	DIEL 877	DIEL 1816	GAP	COLOR	SP. GRAV.	VISUAL	SEDIMENT
05/20/11		0.020 AC	39.0 AC	44 AC			1.50 AC	0.890 AC	CLEAR AC	NONE AC
05/24/12		0.030 AC	39.9 AC	38 AC			1.50 AC	0.890 AC	CLEAR AC	NONE AC
05/01/13		0.020 AC	40.2 AC	43 AC			1.50 AC	0.890 AC	CLEAR AC	NONE AC
06/25/18		0.030 AC	40.5 AC	48 AC			1.50 AC	0.890 AC	CLEAR AC	NONE AC
06/27/19		0.030 AC	40.8 AC	34 AC			1.50 AC	0.890 AC	CLEAR AC	NONE AC
06/22/20		0.020 AC	40.0 AC	43 AC			1.00 AC	0.890 AC	CLEAR AC	NONE AC
06/07/21		0.020 AC	37.2 AC	49 AC			1.50 AC	0.880 AC	CLEAR AC	NONE AC
06/07/22		0.020 AC	38.7 AC	43 AC			1.50 AC	0.892 AC	CLEAR AC	NONE AC

INHIBITOR CONTENT

DATE	PCT. BY WEIGHT
10/25/06	0.09% UN

NOTE - THIS UNIT HAS A BLADDER OR CONTINUOUS N2 SYSTEM. THEREFORE, THE UNIT DOES NOT REQUIRE INHIBITED OIL. HOWEVER, HAVING INHIBITED OIL WILL PROVIDE ADDITIONAL PROTECTION AGAINST OIL OXIDATION IF THE CURRENT OIL PRESERVATION SYSTEM WERE TO EVER FAIL.

LIQUID POWER FACTOR

DATE	25 C	100 C
06/27/19	0.015 AC	0.583 AC
06/22/20	0.012 AC	0.226 AC
06/07/21	0.001 AC	0.089 AC
06/07/22	0.043 AC	1.350 AC

KEY TO ABBREVIATIONS: AC - ACCEPTABLE QU - QUESTIONABLE UN - UNACCEPTABLE RS - RESAMPLE

NOTE: * After a result indicates that the test or service was performed by an outside source.

Customer 0554000 Brownsville Public Utilities
Sub-Name PRICE RD SUB
Location OUTDOOR/GROUND

S/N 322706-02-2
Mfg. KUHLMAN
Unit No. T2

Gallons 6,690
KVA 150,000
High Volt. 138,000
Low Volt. 12,470

KARL FISCHER TESTING MOISTURE CONTENT EXPRESSED IN PPM

DATE	AVG. TEMP	PPM	PCT. SATURATION	MOISTURE BY DRY WEIGHT PCT.
06/27/19	35	5	5.0 AC	0.50
06/22/20	34	7	7.2 AC	0.75
06/07/21	39	10	8.6 QU	0.77
06/07/22	35	2	1.5 AC	0.15

RECOMMENDATION RETEST 1 YEAR

The moisture content has decreased since our last analysis. If service has not been performed, this may be due to temperature and/or operational changes. Continued normal monitoring is indicated.

FURAN ANALYSIS EXPRESSED IN PPB

DATE	5H2F	2FOL	2FAL	2ACF	5M2F	TOTAL
05/01/13	ND	ND	1	ND	ND	1
06/25/18	ND	ND	1	ND	ND	1
06/27/19	ND	ND	1	ND	ND	1
06/22/20	ND	ND	6	ND	ND	6
06/07/21	ND	ND	4	ND	ND	4
06/07/22	ND	ND	2	ND	ND	2

RECOMMENDATION RETEST 1 YEAR

NO DIAGNOSTIC CHANGES ARE NOTED IN FURAN LEVELS SINCE THE PREVIOUS ANALYSIS. THE CELLULOSIC INSULATION APPEARS TO BE IN GOOD CONDITION.

CALCULATED DP 800 **EST. LIFE REMAINING** 100%

GAS-IN-OIL ANALYSIS GAS CHROMATOGRAPHY EXPRESSED IN PPM

DATE	HYDROGEN	OXYGEN	NITROGEN	METHANE	CARBON MONOXIDE	CARBON DIOXIDE	ETHANE	ETHYLENE	ACETYLENE	TOTAL COMBUST.	TOTAL GAS
05/24/12	ND	2,279	73,030	2	29	1,656	2	ND	ND	33	76,998
05/01/13	8	9,986	78,648	3	12	1,601	2	1	ND	26	90,261
06/25/18	ND	1,860	75,056	ND	25	756	ND	ND	ND	25	77,697
06/27/19	ND	847	63,614	1	18	575	ND	ND	ND	19	65,055
06/22/20	ND	1,456	77,840	1	25	910	1	ND	ND	27	80,233
06/07/21	ND	1,535	78,094	ND	4	759	1	ND	ND	5	80,393
06/07/22	3	694	75,409	1	7	665	1	ND	ND	12	76,780

RECOMMENDATION RETEST 1 YEAR

B-THE ANALYSIS OF THIS SAMPLE SHOWS NO SIGNIFICANT INCREASE IN THE COMBUSTIBLE GAS VOLUME. THIS INDICATES NORMAL OPERATION.

ICP METALS-IN-OIL EXPRESSED IN PPM

DATE	ALUMINUM	IRON	COPPER
06/02/05	<0.1	<0.03	<0.01
10/25/06	<0.1	<0.03	<0.01
05/20/11	<0.1	<0.03	0.05
05/24/12	<0.1	<0.03	0.08
05/01/13	<0.1	<0.03	0.10

RECOMMENDATION RETEST 1 YEAR

THERE HAS BEEN NO DIAGNOSTIC CHANGE SINCE THE PREVIOUS ANALYSIS. THESE DATA INDICATE NORMAL OPERATION.

PCB CONTENT EXPRESSED IN PPM

DATE	1242	1254	1260	OTHER	TOTAL
05/20/11	ND	ND	ND	ND	ND
05/24/12	ND	ND	ND	ND	ND
05/01/13	ND	ND	ND	ND	ND
06/22/20	ND	ND	ND	ND	ND
06/07/21	ND	ND	ND	ND	ND
06/07/22	ND	ND	ND	ND	ND

COLOR LABEL: Green **CLASS:** NON-PCB

Results in mg/kg
 ND means None Detected
 (<2 mg/kg per ASTM D4059)

Customer 0554000 Brownsville Public Utilities
Sub-Name PRICE RD SUB

City Brownsville, TX
Unit No. T2

Location OUTDOOR/GROUND
Other EQUIP: MOTC

NAMEPLATE DATA

Equipment Type LOAD TAP CHANGER
Manufacturer
Serial No. C014839
LTC Model No.
LTC for TC No. 320

Liquid Type OIL
LTC Gallons 268.00
Selector Gallons 280.00
Transfer/Diverter Gallons

ADDITIONAL EQUIPMENT

Conservator Tank No
Silica Gel Yes
Breather FREE/DESICCA
Top FPV (inch) 0.50 Plug
Bottom FPV (inch) 2.00 Valve

VISUAL INSPECTION

DATE	LEVEL	SAMPLE TEMP	TOP TEMP	P/V	PAINT	Tap Counter Reading	LEAKS
06/27/19	NORMAL	36	45	1.50	FAIR	23530	
06/22/20	NORMAL	30			FAIR	23580	NONE
06/07/21	NORMAL	40			FAIR	23680	NONE
06/07/22	NORMAL	34	50		FAIR	23680	NONE

FIELD SERVICE

DATE SERVICE

Additional Information 6/7/2022 10:23:00 AM CORROSIVE SULFUR TEST (48 HRS. @ 150 C): CORROSIVE 4a

Reason Not Tested

LIQUID SCREEN TEST DATA

DATE	SERVICE	ACID	IFT	DIEL 877	DIEL 1816	GAP	COLOR	SP. GRAV.	VISUAL	SEDIMENT
05/24/12		0.030 AC	37.3 AC	35 AC			2.00 AC	0.890 AC	CLEAR AC	NONE AC
05/01/13		0.030 AC	37.1 AC	41 AC			2.50 AC	0.890 AC	CLEAR AC	NONE AC
06/25/18		0.030 AC	37.3 AC	37 AC			3.00 AC	0.890 AC	CLEAR AC	NONE AC
06/27/19		0.040 AC	37.4 AC	40 AC			3.00 AC	0.880 AC	CLEAR AC	NONE AC
06/22/20		0.030 AC	35.4 AC	34 AC			3.00 AC	0.890 AC	CLEAR AC	NONE AC
06/07/21		0.040 AC	33.8 AC	37 AC			3.50 UN	0.880 AC	CLEAR AC	NONE AC
06/07/22		0.040 AC	34.0 AC	48 AC			3.50 UN	0.890 AC	CLEAR AC	NONE AC

INHIBITOR CONTENT

DATE	PCT. BY WEIGHT
10/25/06	<0.02% UN

NOTE - STUDIES SHOW THAT A LEVEL OF 0.3% INHIBITOR IS OPTIMUM FOR PRESERVATION OF IN-SERVICE TRANSFORMER OILS. OILS WITH A LEVEL BELOW 0.08% ARE CONSIDERED TO BE UNINHIBITED.

LIQUID POWER FACTOR

DATE	25 C	100 C
05/01/13	0.053	0.738
06/25/18	0.036	0.888
06/27/19	0.025	0.615
06/22/20	0.009	0.564
06/07/21	0.003	0.802

KEY TO ABBREVIATIONS: AC - ACCEPTABLE QU - QUESTIONABLE UN - UNACCEPTABLE RS - RESAMPLE

NOTE: * After a result indicates that the test or service was performed by an outside source.

Customer 0554000 Brownsville Public Utilities
Sub-Name PRICE RD SUB
Location OUTDOOR/GROUND

S/N C014839
Mfg.
Unit No. T2

Gallons 268
KVA

High Volt.
Low Volt.

KARL FISCHER TESTING MOISTURE CONTENT EXPRESSED IN PPM

DATE	AVG. TEMP	PPM	PCT.		MOISTURE BY DRY
			SATURATION	UN	WEIGHT PCT.
05/01/13		64	N/A	UN	N/A
06/25/18	47	70	N/A	UN	N/A
06/27/19	41	63	N/A	UN	N/A
06/22/20	35	59	N/A	QU	N/A
06/07/21	45	67	N/A	UN	N/A
06/07/22	39	64	N/A	UN	N/A

RECOMMENDATION RETEST 3 MONTHS

The moisture content has increased and is now unacceptable. A shorter test interval is recommended to monitor this unit and to confirm this result.

FURAN ANALYSIS EXPRESSED IN PPB

DATE	5H2F	2FOL	2FAL	2ACF	5M2F	TOTAL
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GAS-IN-OIL ANALYSIS GAS CHROMATOGRAPHY EXPRESSED IN PPM

DATE	HYDROGEN	OXYGEN	NITROGEN	METHANE	CARBON		ETHANE	ETHYLENE	ACETYLENE	TOTAL COMBUST.	TOTAL GAS
					MONOXIDE	DIOXIDE					
06/02/05	ND	29,693	68,474	4	21	799	3	4	2	34	99,000
06/25/18	26	27,062	67,790	7	37	6,363	3	2	ND	75	101,290
06/27/19	127	30,093	71,559	6	54	5,456	3	2	ND	192	107,300
06/22/20	7	24,591	64,806	6	65	5,222	2	3	ND	83	94,702
06/07/21	11	20,459	61,377	2	36	2,620	1	3	ND	53	84,509
06/07/22	15	22,293	61,585	2	33	1,988	1	2	ND	53	85,919

RECOMMENDATION RETEST 3 MO. (DUE TO PRCL CNT)

B-THE ANALYSIS OF THIS SAMPLE SHOWS NO SIGNIFICANT INCREASE IN THE COMBUSTIBLE GAS VOLUME. THIS INDICATES NORMAL OPERATION.

ICP METALS-IN-OIL EXPRESSED IN PPM

DATE	ALUMINUM	IRON	COPPER
06/02/05	<0.1	<0.03	0.56
10/25/06	<0.1	<0.03	0.45
06/25/18	<0.1	<0.03	0.04
06/27/19	<0.1	<0.03	0.04
06/22/20	<0.1	<0.03	0.04
06/07/21	<0.1	<0.03	0.05

RECOMMENDATION

NO RECOMMENDATION IS POSSIBLE FOR THIS SAMPLE. WE ARE UNAWARE OF ANY PARAMETERS OR GUIDANCE THAT WOULD ENABLE US TO INTERPRET THESE RESULTS OR DETERMINE AN APPROPRIATE MONITORING SCHEDULE.

PCB CONTENT EXPRESSED IN PPM

DATE	1242	1254	1260	OTHER	TOTAL
06/22/20	ND	ND	ND	ND	ND
06/07/21	ND	ND	ND	ND	ND

COLOR LABEL: Green **CLASS:** NON-PCB

Results in mg/kg
 ND means None Detected
 (<2 mg/kg per ASTM D4059)

Customer 0554000 Brownsville Public Utilities
Sub-Name FILTER SUB

City Brownsville, TX
Unit No. T1

Location OUTDOOR/GROUND
Other

NAMEPLATE DATA

Manufacturer	GE PROLEC	Equipment Type	TRANSFORMER
Manufacture Date	12/1/2004	Transformer Class	ONAN/ONAF
Serial No.	G1407-01	Impedance %	9.55
KVA Rating	15,000	Phase/Cycle	3/60
High Voltage	138,000	Liquid Type	OIL
Low Voltage	12,470	Gallons	6,625
Weight	142,100	Other Access	TOP INSPECTION PLATE

ADDITIONAL EQUIPMENT

Radiators	Yes	Conservator Tank	No
Fans	Yes	LTC Compartment	Yes
Water Cooled	No	Bushing Location	TOP
Oil Pumps	No	Breather	N2 SYSTEM
Top FPV (inch)	1.00 Valve	Hose Length (feet)	100
Bottom FPV (inch)	2.00 Valve	Service Online	Yes
InsulationType	55/65C	Power Available	Yes

VISUAL INSPECTION

DATE	LEVEL	SAMPLE TEMP	TOP TEMP	P/V	PAINT	LEAKS
06/26/19	NORMAL	30	40	0.50	FAIR	
06/22/20	NORMAL	31	43	0.50	FAIR	NONE
06/07/21	NORMAL	32	44	1.00	FAIR	NONE
06/07/22	NORMAL	30	43	1.00	FAIR	NONE

FIELD SERVICE

DATE SERVICE

Additional Information 6/7/2022 8:56:00 AM CORROSIVE SULFUR TEST (48 HRS. @ 150 C): CORROSIVE 4a

Reason Not Tested

LIQUID SCREEN TEST DATA

DATE	SERVICE	ACID	IFT	DIEL 877	DIEL 1816	GAP	COLOR	SP. GRAV.	VISUAL	SEDIMENT
05/20/11		0.010 AC	44.2 AC	48 AC			0.50 AC	0.880 AC	CLEAR AC	NONE AC
05/24/12		0.020 AC	43.5 AC	37 AC			0.50 AC	0.890 AC	CLEAR AC	NONE AC
05/01/13		0.010 AC	42.0 AC	46 AC			0.50 AC	0.890 AC	CLEAR AC	NONE AC
06/25/18		0.020 AC	41.2 AC	45 AC			0.50 AC	0.880 AC	CLEAR AC	NONE AC
06/26/19		0.010 AC	41.1 AC	40 AC			0.50 AC	0.880 AC	CLEAR AC	NONE AC
06/22/20		0.010 AC	39.6 AC	45 AC			0.50 AC	0.890 AC	CLEAR AC	NONE AC
06/07/21		0.010 AC	38.2 AC	51 AC			0.50 AC	0.880 AC	CLEAR AC	NONE AC
06/07/22		0.010 AC	38.6 AC	49 AC			0.50 AC	0.888 AC	CLEAR AC	NONE AC

INHIBITOR CONTENT

DATE	PCT. BY WEIGHT
10/25/06	<0.02% UN

NOTE - THIS UNIT HAS A BLADDER OR CONTINUOUS N2 SYSTEM. THEREFORE, THE UNIT DOES NOT REQUIRE INHIBITED OIL. HOWEVER, HAVING INHIBITED OIL WILL PROVIDE ADDITIONAL PROTECTION AGAINST OIL OXIDATION IF THE CURRENT OIL PRESERVATION SYSTEM WERE TO EVER FAIL.

LIQUID POWER FACTOR

DATE	25 C	100 C
06/25/18	0.003 AC	0.099 AC
06/26/19	0.012 AC	0.331 AC
06/22/20	0.003 AC	0.124 AC
06/07/21	0.001 AC	0.092 AC
06/07/22	0.019 AC	0.301 AC

KEY TO ABBREVIATIONS: AC - ACCEPTABLE QU - QUESTIONABLE UN - UNACCEPTABLE RS - RESAMPLE

NOTE: * After a result indicates that the test or service was performed by an outside source.

Customer 0554000 Brownsville Public Utilities
Sub-Name FILTER SUB
Location OUTDOOR/GROUND

S/N G1407-01
Mfg. GE PROLEC
Unit No. T1

Gallons 6,625
KVA 15,000
High Volt. 138,000
Low Volt. 12,470

KARL FISCHER TESTING MOISTURE CONTENT EXPRESSED IN PPM

DATE	AVG.		PCT.		MOISTURE BY DRY	
	TEMP	PPM	SATURATION		WEIGHT PCT.	
05/01/13	29	4	4.4	AC	0.48	
06/25/18	38	3	2.2	AC	0.21	
06/26/19	35	4	3.5	AC	0.35	
06/22/20	36	7	6.7	AC	0.67	
06/07/21	37	7	6.2	AC	0.59	
06/07/22	35	4	4.0	AC	0.40	

RECOMMENDATION RETEST 1 YEAR

The moisture content continues to be acceptable based on the equipment and liquid type. Continued normal monitoring is indicated.

FURAN ANALYSIS EXPRESSED IN PPB

DATE	5H2F	2FOL	2FAL	2ACF	5M2F	TOTAL
05/01/13	ND	ND	3	ND	ND	3
06/25/18	ND	ND	1	ND	ND	1
06/26/19	ND	ND	1	ND	ND	1
06/22/20	ND	ND	17	ND	ND	17
06/07/21	ND	ND	3	ND	ND	3
06/07/22	ND	ND	2	ND	ND	2

RECOMMENDATION RETEST 1 YEAR

NO DIAGNOSTIC CHANGES ARE NOTED IN FURAN LEVELS SINCE THE PREVIOUS ANALYSIS. THE CELLULOSIC INSULATION APPEARS TO BE IN GOOD CONDITION.

CALCULATED DP 800 **EST. LIFE REMAINING** 100%

GAS-IN-OIL ANALYSIS GAS CHROMATOGRAPHY EXPRESSED IN PPM

DATE	HYDROGEN	OXYGEN	NITROGEN	METHANE	CARBON		ETHANE	ETHYLENE	ACETYLENE	TOTAL COMBUST.	TOTAL GAS
					MONOXIDE	DIOXIDE					
05/24/12	ND	2,353	68,898	2	3	235	9	1	ND	15	71,501
05/01/13	9	8,440	75,120	2	2	343	16	1	ND	30	83,933
06/25/18	ND	1,254	88,446	1	2	63	ND	ND	ND	3	89,766
06/26/19	ND	2,012	58,345	ND	5	67	ND	ND	ND	5	60,429
06/22/20	ND	1,438	87,824	1	9	111	3	ND	ND	13	89,386
06/07/21	ND	462	79,991	1	1	137	8	ND	ND	10	80,600
06/07/22	17	277	80,712	1	2	98	4	ND	ND	24	81,111

RECOMMENDATION RETEST 1 YEAR

B-THE ANALYSIS OF THIS SAMPLE SHOWS NO SIGNIFICANT INCREASE IN THE COMBUSTIBLE GAS VOLUME. THIS INDICATES NORMAL OPERATION.

ICP METALS-IN-OIL EXPRESSED IN PPM

DATE	ALUMINUM	IRON	COPPER
06/02/05	<0.1	<0.03	<0.01
10/25/06	<0.1	<0.03	<0.01
05/20/11	<0.1	<0.03	<0.01
05/24/12	<0.1	<0.03	<0.01
05/01/13	<0.1	<0.03	0.04

RECOMMENDATION RETEST 1 YEAR

THERE HAS BEEN NO DIAGNOSTIC CHANGE SINCE THE PREVIOUS ANALYSIS. THESE DATA INDICATE NORMAL OPERATION.

PCB CONTENT EXPRESSED IN PPM

DATE	1242	1254	1260	OTHER	TOTAL
05/20/11	ND	ND	ND	ND	ND
05/24/12	ND	ND	ND	ND	ND
05/01/13	ND	ND	ND	ND	ND
06/22/20	ND	ND	ND	ND	ND
06/07/21	ND	ND	ND	ND	ND
06/07/22	2	ND	ND	ND	2

COLOR LABEL: Green **CLASS:** NON-PCB

Results in mg/kg
 ND means None Detected
 (<2 mg/kg per ASTM D4059)

Customer 0554000 Brownsville Public Utilities
Sub-Name FILTER SUB

City Brownsville, TX
Unit No. T1

Location OUTDOOR/GROUND
Other EQUIP: MOTC

NAMEPLATE DATA

Equipment Type LOAD TAP CHANGER
Manufacturer REINHAUSEN
Serial No. C015750
LTC Model No.
LTC for TC No. 322

Liquid Type OIL
LTC Gallons 268.00
Selector Gallons 279.00
Transfer/Diverter Gallons

ADDITIONAL EQUIPMENT

Conservator Tank
Silica Gel Yes
Breather FREE/DESICCA
Top FPV (inch) 0.50 Plug
Bottom FPV (inch) 1.00 Valve

VISUAL INSPECTION

DATE	LEVEL	SAMPLE TEMP	TOP TEMP	P/V	PAINT	Tap Counter Reading	LEAKS
06/26/19	NORMAL	30	40	0.50	FAIR	25623	
06/22/20	NORMAL	30			FAIR	26171	NONE
06/07/21	NORMAL	33			FAIR	26487	NONE
06/07/22	NORMAL	30	47		FAIR	28103	NONE

FIELD SERVICE

DATE SERVICE

Additional Information 6/7/2022 8:58:00 AM CORROSIVE SULFUR TEST (48 HRS. @ 150 C): CORROSIVE 4b

Reason Not Tested

LIQUID SCREEN TEST DATA

DATE	SERVICE	ACID	IFT	DIEL 877	DIEL 1816	GAP	COLOR	SP. GRAV.	VISUAL	SEDIMENT
05/20/11		0.030 AC	41.4 AC	43 AC			0.50 AC	0.890 AC	CLEAR AC	NONE AC
05/24/12		0.020 AC	40.5 AC	37 AC			0.50 AC	0.890 AC	CLEAR AC	NONE AC
05/01/13		0.020 AC	40.7 AC	47 AC			0.50 AC	0.890 AC	CLEAR AC	NONE AC
06/25/18		0.020 AC	38.2 AC	44 AC			0.50 AC	0.885 AC	CLEAR AC	NONE AC
06/26/19		0.020 AC	39.0 AC	46 AC			0.50 AC	0.880 AC	CLEAR AC	NONE AC
06/22/20		0.010 AC	38.3 AC	41 AC			0.50 AC	0.890 AC	CLEAR AC	NONE AC
06/07/21		0.010 AC	37.4 AC	53 AC			0.50 AC	0.880 AC	CLEAR AC	NONE AC
06/07/22		0.020 AC	38.2 AC	60 AC			0.50 AC	0.890 AC	CLEAR AC	NONE AC

INHIBITOR CONTENT

DATE	PCT. BY WEIGHT
10/25/06	<0.02% UN

NOTE - STUDIES SHOW THAT A LEVEL OF 0.3% INHIBITOR IS OPTIMUM FOR PRESERVATION OF IN-SERVICE TRANSFORMER OILS. OILS WITH A LEVEL BELOW 0.08% ARE CONSIDERED TO BE UNINHIBITED.

LIQUID POWER FACTOR

DATE	25 C	100 C
05/01/13	0.019	0.343
06/25/18	0.025	0.475
06/26/19	0.012	0.253
06/22/20	0.007	0.333
06/07/21	0.001	0.208

KEY TO ABBREVIATIONS: AC - ACCEPTABLE QU - QUESTIONABLE UN - UNACCEPTABLE RS - RESAMPLE

NOTE: * After a result indicates that the test or service was performed by an outside source.

Customer 0554000 Brownsville Public Utilities
Sub-Name FILTER SUB
Location OUTDOOR/GROUND

S/N C015750
Mfg. REINHAUSEN
Unit No. T1

Gallons 268
KVA

High Volt.
Low Volt.

KARL FISCHER TESTING MOISTURE CONTENT EXPRESSED IN PPM

DATE	AVG. TEMP	PPM	PCT. SATURATION	MOISTURE BY DRY WEIGHT PCT.
05/01/13		24	N/A AC	N/A
06/25/18	41	28	N/A AC	N/A
06/26/19	35	31	N/A AC	N/A
06/22/20	35	27	N/A AC	N/A
06/07/21	38	32	N/A AC	N/A
06/07/22	35	31	N/A AC	N/A

RECOMMENDATION RETEST 1 YEAR

The moisture content continues to be acceptable based on the equipment and liquid type. Continued normal monitoring is indicated.

FURAN ANALYSIS EXPRESSED IN PPB

DATE	5H2F	2FOL	2FAL	2ACF	5M2F	TOTAL
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GAS-IN-OIL ANALYSIS GAS CHROMATOGRAPHY EXPRESSED IN PPM

DATE	HYDROGEN	OXYGEN	NITROGEN	METHANE	CARBON MONOXIDE	CARBON DIOXIDE	ETHANE	ETHYLENE	ACETYLENE	TOTAL COMBUST.	TOTAL GAS
06/02/05	21	28,900	63,821	5	13	714	2	11	12	64	93,499
06/25/18	ND	34,781	76,995	3	4	495	ND	ND	ND	7	112,278
06/26/19	ND	36,880	75,586	2	7	785	ND	ND	ND	9	113,260
06/22/20	ND	32,719	71,442	2	6	610	ND	1	ND	9	104,780
06/07/21	ND	28,358	60,970	1	4	611	ND	1	ND	6	89,945
06/07/22	12	29,607	61,986	1	4	559	ND	ND	ND	17	92,169

RECOMMENDATION RETEST 1 YEAR

B-THE ANALYSIS OF THIS SAMPLE SHOWS NO SIGNIFICANT INCREASE IN THE COMBUSTIBLE GAS VOLUME. THIS INDICATES NORMAL OPERATION.

ICP METALS-IN-OIL EXPRESSED IN PPM

DATE	ALUMINUM	IRON	COPPER
06/02/05	<0.1	<0.03	0.05
10/25/06	<0.1	<0.03	0.05
06/25/18	<0.1	<0.03	<0.01
06/26/19	<0.1	<0.03	<0.01
06/22/20	<0.1	<0.03	0.01
06/07/21	<0.1	<0.03	<0.01

RECOMMENDATION

NO RECOMMENDATION IS POSSIBLE FOR THIS SAMPLE. WE ARE UNAWARE OF ANY PARAMETERS OR GUIDANCE THAT WOULD ENABLE US TO INTERPRET THESE RESULTS OR DETERMINE AN APPROPRIATE MONITORING SCHEDULE.

PCB CONTENT EXPRESSED IN PPM

DATE	1242	1254	1260	OTHER	TOTAL
06/22/20	ND	ND	ND	ND	ND
06/07/21	ND	ND	ND	ND	ND

COLOR LABEL: Green **CLASS:** NON-PCB

Results in mg/kg
 ND means None Detected
 (<2 mg/kg per ASTM D4059)

Customer 0554000 Brownsville Public Utilities
Sub-Name FILTER SUB

City Brownsville, TX
Unit No. T-2

Location OUTDOOR/GROUND
Other

NAMEPLATE DATA

Manufacturer	GE PROLEC	Equipment Type	TRANSFORMER
Manufacture Date	10/1/2004	Transformer Class	ONAN/ONAF
Serial No.	G1406-02	Impedance %	9.68
KVA Rating	15,000	Phase/Cycle	3/60
High Voltage	138,000	Liquid Type	OIL
Low Voltage	12,470	Gallons	5,455
Weight	130,645	Other Access	TOP INSPECTION PLATE

ADDITIONAL EQUIPMENT

Radiators	Yes	Conservator Tank	No
Fans	Yes	LTC Compartment	Yes
Water Cooled	No	Bushing Location	TOP
Oil Pumps	No	Breather	N2 SYSTEM
Top FPV (inch)	1.00 Valve	Hose Length (feet)	200
Bottom FPV (inch)	2.00 Valve	Service Online	Yes
InsulationType	55/65C	Power Available	Yes

VISUAL INSPECTION

DATE	LEVEL	SAMPLE TEMP	TOP TEMP	P/V	PAINT	LEAKS
06/26/19	NORMAL	30	42	1.50	FAIR	
06/22/20	NORMAL	31	46	2.00	FAIR	NONE
06/07/21	NORMAL	32	45	2.50	FAIR	NONE
06/07/22	NORMAL	31	44	2.00	FAIR	NONE

FIELD SERVICE

DATE SERVICE

Additional Information 6/7/2022 9:00:00 AM CORROSIVE SULFUR TEST (48 HRS. @ 150 C): CORROSIVE 4b

Reason Not Tested

LIQUID SCREEN TEST DATA

DATE	SERVICE	ACID	IFT	DIEL 877	DIEL 1816	GAP	COLOR	SP. GRAV.	VISUAL	SEDIMENT
05/20/11		0.020 AC	41.3 AC	45 AC			0.50 AC	0.890 AC	CLEAR AC	NONE AC
05/24/12		0.020 AC	41.2 AC	35 AC			0.50 AC	0.890 AC	CLEAR AC	NONE AC
05/01/13		0.020 AC	41.7 AC	48 AC			0.50 AC	0.890 AC	CLEAR AC	NONE AC
06/25/18		0.020 AC	41.8 AC	46 AC			0.75 AC	0.890 AC	CLEAR AC	NONE AC
06/26/19		0.020 AC	41.3 AC	43 AC			0.75 AC	0.890 AC	CLEAR AC	NONE AC
06/22/20		0.020 AC	39.3 AC	45 AC			0.75 AC	0.890 AC	CLEAR AC	NONE AC
06/07/21		0.020 AC	38.8 AC	47 AC			1.00 AC	0.880 AC	CLEAR AC	NONE AC
06/07/22		0.020 AC	38.9 AC	51 AC			1.00 AC	0.888 AC	CLEAR AC	NONE AC

INHIBITOR CONTENT

DATE	PCT. BY WEIGHT
10/25/06	<0.02% UN

NOTE - THIS UNIT HAS A BLADDER OR CONTINUOUS N2 SYSTEM. THEREFORE, THE UNIT DOES NOT REQUIRE INHIBITED OIL. HOWEVER, HAVING INHIBITED OIL WILL PROVIDE ADDITIONAL PROTECTION AGAINST OIL OXIDATION IF THE CURRENT OIL PRESERVATION SYSTEM WERE TO EVER FAIL.

LIQUID POWER FACTOR

DATE	25 C	100 C
06/25/18	0.004 AC	0.131 AC
06/26/19	0.012 AC	0.274 AC
06/22/20	0.004 AC	0.140 AC
06/07/21	0.001 AC	0.128 AC
06/07/22	0.064 AC	1.320 AC

KEY TO ABBREVIATIONS: AC - ACCEPTABLE QU - QUESTIONABLE UN - UNACCEPTABLE RS - RESAMPLE

NOTE: * After a result indicates that the test or service was performed by an outside source.

Customer 0554000 Brownsville Public Utilities
Sub-Name FILTER SUB
Location OUTDOOR/GROUND

S/N G1406-02
Mfg. GE PROLEC
Unit No. T-2

Gallons 5,455
KVA 15,000
High Volt. 138,000
Low Volt. 12,470

KARL FISCHER TESTING MOISTURE CONTENT EXPRESSED IN PPM

DATE	AVG.		PCT.		MOISTURE BY DRY	
	TEMP	PPM	SATURATION	AC	WEIGHT PCT.	
06/26/19	35	6	6.0	AC	0.60	
06/22/20	36	5	4.8	AC	0.48	
06/07/21	37	12	11.1	QU	1.07	
06/07/22	36	3	2.4	AC	0.24	

RECOMMENDATION RETEST 1 YEAR

The moisture content has decreased since our last analysis. If service has not been performed, this may be due to temperature and/or operational changes. Continued normal monitoring is indicated.

FURAN ANALYSIS EXPRESSED IN PPB

DATE	5H2F	2FOL	2FAL	2ACF	5M2F	TOTAL
05/01/13	ND	ND	1	ND	ND	1
06/25/18	ND	ND	1	ND	ND	1
06/26/19	ND	ND	1	ND	ND	1
06/22/20	ND	ND	12	ND	ND	12
06/07/21	ND	ND	7	ND	ND	7
06/07/22	ND	ND	3	ND	ND	3

RECOMMENDATION RETEST 1 YEAR

NO DIAGNOSTIC CHANGES ARE NOTED IN FURAN LEVELS SINCE THE PREVIOUS ANALYSIS. THE CELLULOSIC INSULATION APPEARS TO BE IN GOOD CONDITION.

CALCULATED DP 800 **EST. LIFE REMAINING** 100%

GAS-IN-OIL ANALYSIS GAS CHROMATOGRAPHY EXPRESSED IN PPM

DATE	HYDROGEN	OXYGEN	NITROGEN	METHANE	CARBON		ETHANE	ETHYLENE	ACETYLENE	TOTAL COMBUST.	TOTAL GAS
					MONOXIDE	DIOXIDE					
05/20/11	3	2,348	88,994	43	49	1,549	121	14	ND	230	93,121
05/24/12	6	2,909	67,138	26	29	1,300	83	8	ND	152	71,499
05/01/13	ND	11,175	76,730	6	64	908	10	ND	ND	80	88,893
06/25/18	ND	1,386	84,445	6	53	1,777	8	2	ND	69	87,677
06/26/19	ND	467	98,213	6	62	2,429	12	1	ND	81	101,190
06/22/20	ND	814	86,546	5	47	2,119	10	2	ND	64	89,543
06/07/21	ND	670	84,757	3	26	1,844	8	2	ND	39	87,310
06/07/22	14	1,041	85,384	4	26	1,819	6	1	ND	51	88,295

RECOMMENDATION RETEST 1 YEAR

B-THE ANALYSIS OF THIS SAMPLE SHOWS NO SIGNIFICANT INCREASE IN THE COMBUSTIBLE GAS VOLUME. THIS INDICATES NORMAL OPERATION.

ICP METALS-IN-OIL EXPRESSED IN PPM

DATE	ALUMINUM	IRON	COPPER
06/02/05	<0.1	<0.03	<0.01
10/25/06	<0.1	<0.03	0.03
05/20/11	<0.1	<0.03	<0.01
05/24/12	<0.1	<0.03	<0.01
05/01/13	<0.1	<0.03	0.04

RECOMMENDATION RETEST 1 YEAR

THERE HAS BEEN NO DIAGNOSTIC CHANGE SINCE THE PREVIOUS ANALYSIS. THESE DATA INDICATE NORMAL OPERATION.

PCB CONTENT EXPRESSED IN PPM

DATE	1242	1254	1260	OTHER	TOTAL
05/20/11	ND	ND	ND	ND	ND
05/24/12	ND	ND	ND	ND	ND
05/01/13	ND	ND	ND	ND	ND
06/22/20	ND	ND	ND	ND	ND
06/07/21	ND	ND	ND	ND	ND
06/07/22	2	ND	ND	ND	2

COLOR LABEL: Green **CLASS:** NON-PCB

Results in mg/kg
 ND means None Detected
 (<2 mg/kg per ASTM D4059)

Customer 0554000 Brownsville Public Utilities
Sub-Name FILTER SUB

City Brownsville, TX
Unit No. T-2

Location OUTDOOR
Other EQUIP: MOTC 8 ft

NAMEPLATE DATA

Equipment Type LOAD TAP CHANGER
Manufacturer REINHAUSEN
Serial No.
LTC Model No.
LTC for TC No. 324

Liquid Type OIL
LTC Gallons 268.00
Selector Gallons 279.00
Transfer/Diverter Gallons

ADDITIONAL EQUIPMENT

Conservator Tank
Silica Gel Yes
Breather FREE/DESICCA
Top FPV (inch) 0.50 Plug
Bottom FPV (inch) 1.00 Valve

VISUAL INSPECTION

DATE	LEVEL	SAMPLE TEMP	TOP TEMP	P/V	PAINT	Tap Counter Reading	LEAKS
06/26/19		32	42	1.50		37035	
06/22/20	NORMAL	31			FAIR	37973	NONE
06/07/21	NORMAL	33				39197	NONE
06/07/22	NORMAL	31	44		FAIR	41498	NONE

FIELD SERVICE

DATE SERVICE

Additional Information 6/7/2022 9:01:00 AM CORROSIVE SULFUR TEST (48 HRS. @ 150 C): CORROSIVE 4a

Reason Not Tested

LIQUID SCREEN TEST DATA

DATE	SERVICE	ACID	IFT	DIEL 877	DIEL 1816	GAP	COLOR	SP. GRAV.	VISUAL	SEDIMENT
05/20/11		0.020 AC	41.9 AC	41 AC			1.00 AC	0.890 AC	CLEAR AC	NONE AC
05/24/12		0.020 AC	41.3 AC	35 AC			0.75 AC	0.890 AC	CLEAR AC	NONE AC
05/01/13		0.020 AC	41.0 AC	47 AC			0.75 AC	0.890 AC	CLEAR AC	NONE AC
06/25/18		0.020 AC	40.2 AC	41 AC			0.75 AC	0.890 AC	CLEAR AC	NONE AC
06/26/19		0.010 AC	40.0 AC	47 AC			0.50 AC	0.880 AC	CLEAR AC	NONE AC
06/22/20		0.020 AC	38.6 AC	39 AC			0.75 AC	0.890 AC	CLEAR AC	NONE AC
06/07/21		0.010 AC	37.2 AC	58 AC			0.50 AC	0.880 AC	CLEAR AC	NONE AC
06/07/22		0.020 AC	39.2 AC	58 AC			0.50 AC	0.890 AC	CLEAR AC	NONE AC

INHIBITOR CONTENT

DATE	PCT. BY WEIGHT
10/25/06	<0.02% UN

NOTE - STUDIES SHOW THAT A LEVEL OF 0.3% INHIBITOR IS OPTIMUM FOR PRESERVATION OF IN-SERVICE TRANSFORMER OILS. OILS WITH A LEVEL BELOW 0.08% ARE CONSIDERED TO BE UNINHIBITED.

LIQUID POWER FACTOR

DATE	25 C	100 C
05/01/13	0.011	0.241
06/25/18	0.009	0.489
06/26/19	0.012	0.404
06/22/20	0.007	0.592
06/07/21	0.001	0.356

KEY TO ABBREVIATIONS: AC - ACCEPTABLE QU - QUESTIONABLE UN - UNACCEPTABLE RS - RESAMPLE

NOTE: * After a result indicates that the test or service was performed by an outside source.

Customer 0554000 Brownsville Public Utilities
Sub-Name FILTER SUB
Location OUTDOOR

S/N
Mfg. REINHAUSEN
Unit No. T-2

Gallons 268
KVA

High Volt.
Low Volt.

KARL FISCHER TESTING MOISTURE CONTENT EXPRESSED IN PPM

DATE	AVG. TEMP	PPM	PCT.		MOISTURE BY DRY
			SATURATION	AC	WEIGHT PCT.
05/01/13		21	N/A	AC	N/A
06/25/18	43	26	N/A	AC	N/A
06/26/19	37	29	N/A	AC	N/A
06/22/20	36	27	N/A	AC	N/A
06/07/21	38	33	N/A	AC	N/A
06/07/22	36	30	N/A	AC	N/A

RECOMMENDATION RETEST 1 YEAR

The moisture content continues to be acceptable based on the equipment and liquid type. Continued normal monitoring is indicated.

FURAN ANALYSIS EXPRESSED IN PPB

DATE	5H2F	2FOL	2FAL	2ACF	5M2F	TOTAL
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GAS-IN-OIL ANALYSIS GAS CHROMATOGRAPHY EXPRESSED IN PPM

DATE	HYDROGEN	OXYGEN	NITROGEN	METHANE	CARBON		ETHANE	ETHYLENE	ACETYLENE	TOTAL COMBUST.	TOTAL GAS
					MONOXIDE	DIOXIDE					
06/02/05	19	29,391	63,432	5	12	626	ND	5	11	52	93,501
06/25/18	ND	30,869	66,075	2	5	458	ND	ND	ND	7	97,409
06/26/19	ND	35,867	75,910	2	8	688	ND	1	ND	11	112,476
06/22/20	ND	30,524	69,787	3	12	611	3	4	ND	22	100,944
06/07/21	4	28,139	62,933	2	14	710	ND	1	ND	21	91,803
06/07/22	1	31,437	67,269	1	4	601	ND	1	ND	7	99,314

RECOMMENDATION RETEST 1 YEAR

B-THE ANALYSIS OF THIS SAMPLE SHOWS NO SIGNIFICANT INCREASE IN THE COMBUSTIBLE GAS VOLUME. THIS INDICATES NORMAL OPERATION.

ICP METALS-IN-OIL EXPRESSED IN PPM

DATE	ALUMINUM	IRON	COPPER
06/02/05	<0.1	<0.03	0.07
10/25/06	<0.1	<0.03	0.07
06/25/18	<0.1	<0.03	<0.01
06/26/19	<0.1	<0.03	<0.01
06/22/20	<0.1	0.07	0.04
06/07/21	<0.1	<0.03	<0.01

RECOMMENDATION

NO RECOMMENDATION IS POSSIBLE FOR THIS SAMPLE. WE ARE UNAWARE OF ANY PARAMETERS OR GUIDANCE THAT WOULD ENABLE US TO INTERPRET THESE RESULTS OR DETERMINE AN APPROPRIATE MONITORING SCHEDULE.

PCB CONTENT EXPRESSED IN PPM

DATE	1242	1254	1260	OTHER	TOTAL
06/22/20	ND	ND	ND	ND	ND
06/07/21	ND	ND	ND	ND	ND

COLOR LABEL: Green **CLASS:** NON-PCB

Results in mg/kg
 ND means None Detected
 (<2 mg/kg per ASTM D4059)

Customer 0554000 Brownsville Public Utilities
Sub-Name 802

City Brownsville, TX
Unit No. T2

Location OUTDOOR/GROUND
Other

NAMEPLATE DATA

Manufacturer KUHLMAN
Equipment Type TRANSFORMER
Manufacture Date 1/1/2003
Transformer Class OA/FA/FA
Serial No. 322706-02-01
Impedance % 9.39
KVA Rating 150,000
Phase/Cycle 3/60
High Voltage 138,000 D
Liquid Type OIL
Low Voltage 12,470 Y
Gallons 6,690
Weight 132,668
Other Access TOP INSPECTION PLATE

ADDITIONAL EQUIPMENT

Radiators Yes
Conservator Tank No
Fans Yes
LTC Compartment Yes
Water Cooled No
Bushing Location TOP
Oil Pumps No
Breather N2 SYSTEM
Top FPV (inch) 1.00 Valve
Hose Length (feet) 100
Bottom FPV (inch) 2.00 Valve
Service Online Yes
InsulationType 55/65C
Power Available Yes

VISUAL INSPECTION

DATE	LEVEL	SAMPLE TEMP	TOP TEMP	P/V	PAINT	LEAKS
06/27/19	NORMAL	30	40	1.50	FAIR	
06/22/20	NORMAL	33	46	2.00	FAIR	NONE
06/07/21	NORMAL	34	43	2.50	FAIR	NONE
06/06/22	NORMAL	28	41	1.50	FAIR	NONE

FIELD SERVICE

DATE SERVICE

Additional Information 6/6/2022 10:25:00 AM CORROSIVE SULFUR TEST (48 HRS. @ 150 C): CORROSIVE 4a

Reason Not Tested

LIQUID SCREEN TEST DATA

DATE	SERVICE	ACID	IFT	DIEL 877	DIEL 1816	GAP	COLOR	SP. GRAV.	VISUAL	SEDIMENT
05/20/11		0.020 AC	40.8 AC	45 AC			1.50 AC	0.890 AC	CLEAR AC	NONE AC
05/24/12		0.020 AC	42.0 AC	36 AC			1.50 AC	0.890 AC	CLEAR AC	NONE AC
05/01/13		0.020 AC	40.1 AC	45 AC			1.50 AC	0.890 AC	CLEAR AC	NONE AC
06/25/18		0.030 AC	39.8 AC	49 AC			1.50 AC	0.890 AC	CLEAR AC	NONE AC
06/27/19		0.030 AC	40.3 AC	41 AC			1.50 AC	0.890 AC	CLEAR AC	NONE AC
06/22/20		0.020 AC	40.0 AC	43 AC			1.50 AC	0.890 AC	CLEAR AC	NONE AC
06/07/21		0.020 AC	37.2 AC	31 AC			1.50 AC	0.880 AC	CLEAR AC	NONE AC
06/06/22		0.030 AC	34.2 AC	46 AC			1.00 AC	0.888 AC	CLEAR AC	NONE AC

INHIBITOR CONTENT

DATE	PCT. BY WEIGHT
10/25/06	0.08% UN

NOTE - THIS UNIT HAS A BLADDER OR CONTINUOUS N2 SYSTEM. THEREFORE, THE UNIT DOES NOT REQUIRE INHIBITED OIL. HOWEVER, HAVING INHIBITED OIL WILL PROVIDE ADDITIONAL PROTECTION AGAINST OIL OXIDATION IF THE CURRENT OIL PRESERVATION SYSTEM WERE TO EVER FAIL.

LIQUID POWER FACTOR

DATE	25 C	100 C
06/27/19	0.083 AC	2.420 AC
06/22/20	0.043 AC	0.765 AC
06/07/21	0.001 AC	0.133 AC
06/06/22	0.055 AC	2.060 AC

KEY TO ABBREVIATIONS: AC - ACCEPTABLE QU - QUESTIONABLE UN - UNACCEPTABLE RS - RESAMPLE

NOTE: * After a result indicates that the test or service was performed by an outside source.

Customer 0554000 Brownsville Public Utilities
Sub-Name 802
Location OUTDOOR/GROUND

S/N 322706-02-01
Mfg. KUHLMAN
Unit No. T2

Gallons 6,690
KVA 150,000

High Volt. 138,000
Low Volt. 12,470

KARL FISCHER TESTING MOISTURE CONTENT EXPRESSED IN PPM

DATE	AVG. TEMP	PPM	PCT. SATURATION	MOISTURE BY DRY WEIGHT PCT.
06/25/18	42	6	4.6 AC	0.39
06/27/19	35	11	10.5 QU	1.05
06/22/20	38	9	8.0 QU	0.74
06/07/21	39	9	7.3 AC	0.65
06/06/22	33	3	3.2 AC	0.34

RECOMMENDATION RETEST 1 YEAR

The moisture content continues to be acceptable based on the equipment and liquid type. Continued normal monitoring is indicated.

FURAN ANALYSIS EXPRESSED IN PPB

DATE	5H2F	2FOL	2FAL	2ACF	5M2F	TOTAL
05/01/13	ND	ND	1	ND	ND	1
06/25/18	ND	ND	1	ND	ND	1
06/27/19	ND	ND	1	ND	ND	1
06/22/20	ND	ND	2	ND	ND	2
06/07/21	ND	ND	5	ND	ND	5
06/06/22	ND	ND	6	ND	ND	6

RECOMMENDATION RETEST 1 YEAR

NO DIAGNOSTIC CHANGES ARE NOTED IN FURAN LEVELS SINCE THE PREVIOUS ANALYSIS. THE CELLULOSIC INSULATION APPEARS TO BE IN GOOD CONDITION.

CALCULATED DP 800 **EST. LIFE REMAINING** 100%

GAS-IN-OIL ANALYSIS GAS CHROMATOGRAPHY EXPRESSED IN PPM

DATE	HYDROGEN	OXYGEN	NITROGEN	METHANE	CARBON MONOXIDE	CARBON DIOXIDE	ETHANE	ETHYLENE	ACETYLENE	TOTAL COMBUST.	TOTAL GAS
05/20/11	7	9,262	79,479	9	705	4,384	2	2	ND	725	93,850
05/24/12	ND	6,748	65,530	8	467	4,294	ND	ND	ND	475	77,047
05/01/13	9	14,842	73,748	2	49	1,150	1	ND	ND	61	89,801
06/25/18	ND	2,883	74,485	2	59	1,970	ND	2	ND	63	79,401
06/27/19	ND	1,364	88,082	2	95	2,968	ND	ND	ND	97	92,511
06/22/20	ND	1,932	79,861	2	81	2,524	1	1	ND	85	84,402
06/07/21	ND	1,146	78,352	2	57	2,406	ND	1	ND	60	81,964
06/06/22	ND	751	72,206	2	39	2,618	1	1	ND	43	75,618

RECOMMENDATION RETEST 1 YEAR

B-THE ANALYSIS OF THIS SAMPLE SHOWS NO SIGNIFICANT INCREASE IN THE COMBUSTIBLE GAS VOLUME. THIS INDICATES NORMAL OPERATION.

ICP METALS-IN-OIL EXPRESSED IN PPM

DATE	ALUMINUM	IRON	COPPER
06/02/05	<0.1	<0.03	<0.01
10/25/06	<0.1	<0.03	<0.01
05/20/11	<0.1	<0.03	0.07
05/24/12	<0.1	<0.03	0.03
05/01/13	<0.1	<0.03	0.12

RECOMMENDATION RETEST 1 YEAR

THERE HAS BEEN NO DIAGNOSTIC CHANGE SINCE THE PREVIOUS ANALYSIS. THESE DATA INDICATE NORMAL OPERATION.

PCB CONTENT EXPRESSED IN PPM

DATE	1242	1254	1260	OTHER	TOTAL
05/20/11	ND	ND	ND	ND	ND
05/24/12	ND	ND	ND	ND	ND
05/01/13	ND	ND	ND	ND	ND
06/22/20	ND	ND	ND	ND	ND
06/07/21	ND	ND	ND	ND	ND
06/06/22	ND	ND	ND	ND	ND

COLOR LABEL: Green **CLASS:** NON-PCB

Results in mg/kg
 ND means None Detected
 (<2 mg/kg per ASTM D4059)

Customer 0554000 Brownsville Public Utilities
Sub-Name 802

City Brownsville, TX
Unit No. T2

Location OUTDOOR
Other EQUIP: MOTC 10 ft

NAMEPLATE DATA

Equipment Type LOAD TAP CHANGER
Manufacturer
Serial No.
LTC Model No.
LTC for TC No. 316

Liquid Type OIL
LTC Gallons 268.00
Selector Gallons 280.00
Transfer/Diverter Gallons

ADDITIONAL EQUIPMENT

Conservator Tank No
Silica Gel Yes
Breather FREE/DESICCA
Top FPV (inch) 0.50 Plug
Bottom FPV (inch) 2.00 Valve

VISUAL INSPECTION

DATE	LEVEL	SAMPLE TEMP	TOP TEMP	P/V	PAINT	Tap Counter Reading	LEAKS
06/27/19	NORMAL	38	40	1.50	FAIR	34294	
06/22/20	NORMAL	30			FAIR	35152	NONE
06/07/21	NORMAL	36			FAIR	36025	NONE
06/06/22	NORMAL	33	41		FAIR	38147	NONE

FIELD SERVICE

DATE SERVICE

Additional Information 6/6/2022 10:27:00 AM CORROSIVE SULFUR TEST (48 HRS. @ 150 C): CORROSIVE 4a

Reason Not Tested

LIQUID SCREEN TEST DATA

DATE	SERVICE	ACID	IFT	DIEL 877	DIEL 1816	GAP	COLOR	SP. GRAV.	VISUAL	SEDIMENT
05/24/12		0.030 AC	37.5 AC	43 AC			2.50 AC	0.890 AC	CLEAR AC	NONE AC
05/01/13		0.030 AC	37.3 AC	45 AC			2.50 AC	0.890 AC	CLEAR AC	NONE AC
06/25/18		0.030 AC	36.8 AC	50 AC			3.00 AC	0.890 AC	CLEAR AC	NONE AC
06/27/19		0.040 AC	36.4 AC	50 AC			3.00 AC	0.890 AC	CLEAR AC	NONE AC
06/22/20		0.040 AC	32.4 AC	33 AC			3.00 AC	0.880 AC	CLEAR AC	NONE AC
06/07/21		0.030 AC	35.8 AC	28 QU			3.50 UN	0.880 AC	CLEAR AC	NONE AC
06/06/22		0.040 AC	34.2 AC	56 AC			3.50 UN	0.892 AC	CLEAR AC	NONE AC

INHIBITOR CONTENT

DATE	PCT. BY WEIGHT
10/25/06	<0.02% UN

NOTE - STUDIES SHOW THAT A LEVEL OF 0.3% INHIBITOR IS OPTIMUM FOR PRESERVATION OF IN-SERVICE TRANSFORMER OILS. OILS WITH A LEVEL BELOW 0.08% ARE CONSIDERED TO BE UNINHIBITED.

LIQUID POWER FACTOR

DATE	25 C	100 C
05/01/13	0.018	0.426
06/25/18	0.075	1.850
06/27/19	0.040	0.762
06/22/20	0.012	0.584
06/07/21	0.001	0.476

KEY TO ABBREVIATIONS: AC - ACCEPTABLE QU - QUESTIONABLE UN - UNACCEPTABLE RS - RESAMPLE

NOTE: * After a result indicates that the test or service was performed by an outside source.

Customer 0554000 Brownsville Public Utilities
Sub-Name 802
Location OUTDOOR

S/N
Mfg.
Unit No. T2

Gallons 268
KVA

High Volt.
Low Volt.

KARL FISCHER TESTING MOISTURE CONTENT EXPRESSED IN PPM

DATE	AVG. TEMP	PPM	PCT.		MOISTURE BY DRY
			SATURATION	AC	WEIGHT PCT.
05/01/13		25	N/A	AC	N/A
06/25/18	43	31	N/A	AC	N/A
06/27/19	43	37	N/A	QU	N/A
06/22/20	35	30	N/A	AC	N/A
06/07/21	41	36	N/A	QU	N/A
06/06/22	38	39	N/A	QU	N/A

RECOMMENDATION RETEST 6 MONTHS

The moisture content is questionable based on the equipment class and liquid type. This condition should be monitored with a shorter test interval until it reaches an unacceptable level or until the next preventative maintenance interval.

FURAN ANALYSIS EXPRESSED IN PPB

DATE	5H2F	2FOL	2FAL	2ACF	5M2F	TOTAL
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GAS-IN-OIL ANALYSIS GAS CHROMATOGRAPHY EXPRESSED IN PPM

DATE	HYDROGEN	OXYGEN	NITROGEN	METHANE	CARBON		ETHANE	ETHYLENE	ACETYLENE	TOTAL COMBUST.	TOTAL GAS
					MONOXIDE	DIOXIDE					
06/02/05	8	27,082	59,471	7	21	1,401	4	5	1	46	88,000
06/25/18	ND	26,167	53,001	3	9	716	ND	ND	ND	12	79,896
06/27/19	ND	31,609	67,342	3	19	931	ND	1	ND	23	99,905
06/22/20	ND	30,529	69,194	2	22	837	ND	1	ND	25	100,585
06/07/21	ND	27,130	59,338	2	13	1,228	ND	1	ND	16	87,712
06/06/22	ND	25,309	52,155	1	7	915	ND	ND	ND	8	78,387

RECOMMENDATION RETEST 1 YEAR

B-THE ANALYSIS OF THIS SAMPLE SHOWS NO SIGNIFICANT INCREASE IN THE COMBUSTIBLE GAS VOLUME. THIS INDICATES NORMAL OPERATION.

ICP METALS-IN-OIL EXPRESSED IN PPM

DATE	ALUMINUM	IRON	COPPER
06/02/05	<0.1	<0.03	0.43
10/25/06	<0.1	<0.03	0.25
06/25/18	<0.1	<0.03	0.05
06/27/19	<0.1	<0.03	0.06
06/22/20	<0.1	<0.03	0.04
06/07/21	<0.1	<0.03	0.04

RECOMMENDATION

NO RECOMMENDATION IS POSSIBLE FOR THIS SAMPLE. WE ARE UNAWARE OF ANY PARAMETERS OR GUIDANCE THAT WOULD ENABLE US TO INTERPRET THESE RESULTS OR DETERMINE AN APPROPRIATE MONITORING SCHEDULE.

PCB CONTENT EXPRESSED IN PPM

DATE	1242	1254	1260	OTHER	TOTAL
06/22/20	ND	ND	ND	ND	ND
06/07/21	ND	ND	ND	ND	ND

COLOR LABEL: Green **CLASS:** NON-PCB

Results in mg/kg
 ND means None Detected
 (<2 mg/kg per ASTM D4059)

Customer 0554000 Brownsville Public Utilities
Sub-Name MIDTOWN

City Brownsville, TX
Unit No. T2

Location OUTDOOR/GROUND
Other

NAMEPLATE DATA

Manufacturer	GE PROLEC	Equipment Type	TRANSFORMER
Manufacture Date	10/1/2004	Transformer Class	ONAN/ONAF
Serial No.	G1406-01	Impedance %	9.74
KVA Rating	15,000	Phase/Cycle	3/60
High Voltage	138,000	Liquid Type	OIL
Low Voltage	12,470	Gallons	5,684
Weight	55,010	Other Access	TOP INSPECTION PLATE

ADDITIONAL EQUIPMENT

Radiators	Yes	Conservator Tank	No
Fans	Yes	LTC Compartment	Yes
Water Cooled	No	Bushing Location	TOP
Oil Pumps	No	Breather	N2 SYSTEM
Top FPV (inch)	1.00 Valve	Hose Length (feet)	50
Bottom FPV (inch)	2.00 Valve	Service Online	Yes
InsulationType	55/65C	Power Available	Yes

VISUAL INSPECTION

DATE	LEVEL	SAMPLE TEMP	TOP TEMP	P/V	PAINT	LEAKS
06/27/19	NORMAL	30	52	3.00	FAIR	
06/22/20	NORMAL	33	55	3.75	GOOD	NONE
06/09/21	NORMAL		45	3.00	FAIR	NONE
06/06/22	NORMAL	29	41	2.50	FAIR	NONE

FIELD SERVICE

DATE SERVICE

Additional Information 6/6/2022 9:08:00 AM CORROSIVE SULFUR TEST (48 HRS. @ 150 C): CORROSIVE 4b

Reason Not Tested

LIQUID SCREEN TEST DATA

DATE	SERVICE	ACID	IFT	DIEL 877	DIEL 1816	GAP	COLOR	SP. GRAV.	VISUAL	SEDIMENT
05/20/11		0.020 AC	41.3 AC	46 AC			0.50 AC	0.890 AC	CLEAR AC	NONE AC
05/24/12		0.020 AC	40.9 AC	42 AC			0.50 AC	0.890 AC	CLEAR AC	NONE AC
05/01/13		0.010 AC	40.5 AC	44 AC			0.50 AC	0.880 AC	CLEAR AC	NONE AC
06/27/18		0.010 AC	39.0 AC	46 AC			0.50 AC	0.890 AC	CLEAR AC	NONE AC
06/27/19		0.010 AC	40.0 AC	35 AC			0.50 AC	0.880 AC	CLEAR AC	NONE AC
06/22/20		0.020 AC	40.5 AC	49 AC			0.50 AC	0.875 AC	CLEAR AC	NONE AC
06/09/21		0.010 AC	39.0 AC	37 AC			0.50 AC	0.880 AC	CLEAR AC	NONE AC
06/06/22		0.010 AC	38.4 AC	59 AC			0.50 AC	0.886 AC	CLEAR AC	NONE AC

INHIBITOR CONTENT

DATE	PCT. BY WEIGHT
10/25/06	<0.02% UN

NOTE - THIS UNIT HAS A BLADDER OR CONTINUOUS N2 SYSTEM. THEREFORE, THE UNIT DOES NOT REQUIRE INHIBITED OIL. HOWEVER, HAVING INHIBITED OIL WILL PROVIDE ADDITIONAL PROTECTION AGAINST OIL OXIDATION IF THE CURRENT OIL PRESERVATION SYSTEM WERE TO EVER FAIL.

LIQUID POWER FACTOR

DATE	25 C	100 C
06/27/18	0.008 AC	0.161 AC
06/27/19	0.010 AC	0.277 AC
06/22/20	0.009 AC	0.137 AC
06/09/21	0.001 AC	0.088 AC
06/06/22	0.009 AC	0.322 AC

KEY TO ABBREVIATIONS: AC - ACCEPTABLE QU - QUESTIONABLE UN - UNACCEPTABLE RS - RESAMPLE

NOTE: * After a result indicates that the test or service was performed by an outside source.

Customer 0554000 Brownsville Public Utilities
Sub-Name MIDTOWN
Location OUTDOOR/GROUND

S/N G1406-01
Mfg. GE PROLEC
Unit No. T2

Gallons 5,684
KVA 15,000

High Volt. 138,000
Low Volt. 12,470

KARL FISCHER TESTING MOISTURE CONTENT EXPRESSED IN PPM

DATE	AVG.		PCT.		MOISTURE BY DRY	
	TEMP	PPM	SATURATION	AC	WEIGHT PCT.	
06/27/18	35	3	3.0	AC	0.30	
06/27/19	35	6	6.0	AC	0.60	
06/22/20	38	8	7.1	AC	0.66	
06/09/21	35	5	5.0	AC	0.50	
06/06/22	34	4	4.1	AC	0.43	

RECOMMENDATION RETEST 1 YEAR

The moisture content continues to be acceptable based on the equipment and liquid type. Continued normal monitoring is indicated.

FURAN ANALYSIS EXPRESSED IN PPB

DATE	5H2F	2FOL	2FAL	2ACF	5M2F	TOTAL
05/01/13	ND	ND	1	ND	ND	1
06/27/18	ND	ND	1	ND	ND	1
06/27/19	ND	ND	1	ND	ND	1
06/22/20	ND	ND	13	ND	ND	13
06/09/21	ND	ND	4	ND	ND	4
06/06/22	ND	ND	4	ND	ND	4

RECOMMENDATION RETEST 1 YEAR

NO DIAGNOSTIC CHANGES ARE NOTED IN FURAN LEVELS SINCE THE PREVIOUS ANALYSIS. THE CELLULOSIC INSULATION APPEARS TO BE IN GOOD CONDITION.

CALCULATED DP 800 **EST. LIFE REMAINING** 100%

GAS-IN-OIL ANALYSIS GAS CHROMATOGRAPHY EXPRESSED IN PPM

DATE	HYDROGEN	OXYGEN	NITROGEN	METHANE	CARBON		ETHANE	ETHYLENE	ACETYLENE	TOTAL COMBUST.	TOTAL GAS
					MONOXIDE	DIOXIDE					
05/20/11	21	9,289	80,577	29	183	1,503	57	9	ND	299	91,668
05/24/12	19	8,173	74,344	25	130	1,482	53	6	ND	233	84,232
05/01/13	19	10,515	80,795	28	137	1,650	64	12	ND	260	93,220
06/27/18	12	260	96,425	23	93	1,507	41	5	ND	174	98,366
06/27/19	ND	158	93,084	26	115	2,190	64	4	ND	209	95,641
06/22/20	12	318	86,122	22	103	2,001	54	6	ND	197	88,638
06/09/21	12	141	82,262	22	81	1,663	47	5	ND	167	84,233
06/06/22	7	137	74,325	21	75	1,898	48	6	ND	157	76,517

RECOMMENDATION RETEST 1 YEAR

B-THE ANALYSIS OF THIS SAMPLE SHOWS NO SIGNIFICANT INCREASE IN THE COMBUSTIBLE GAS VOLUME. THIS INDICATES NORMAL OPERATION.

ICP METALS-IN-OIL EXPRESSED IN PPM

DATE	ALUMINUM	IRON	COPPER
06/02/05	<0.1	<0.03	<0.01
10/25/06	<0.1	<0.03	<0.01
05/20/11	<0.1	<0.03	<0.01
05/24/12	<0.1	<0.03	<0.01
05/01/13	<0.1	<0.03	0.04

RECOMMENDATION RETEST 1 YEAR

THERE HAS BEEN NO DIAGNOSTIC CHANGE SINCE THE PREVIOUS ANALYSIS. THESE DATA INDICATE NORMAL OPERATION.

PCB CONTENT EXPRESSED IN PPM

DATE	1242	1254	1260	OTHER	TOTAL
05/20/11	ND	ND	ND	ND	ND
05/24/12	ND	ND	ND	ND	ND
05/01/13	ND	ND	ND	ND	ND
06/22/20	ND	ND	ND	ND	ND
06/09/21	ND	ND	ND	ND	ND
06/06/22	2	ND	ND	ND	2

COLOR LABEL: Green **CLASS:** NON-PCB

Results in mg/kg
 ND means None Detected
 (<2 mg/kg per ASTM D4059)

Customer 0554000 Brownsville Public Utilities
Sub-Name MIDTOWN

City Brownsville, TX
Unit No. T2

Location OUTDOOR/GROUND
Other EQUIP: MOTC 10 ft

NAMEPLATE DATA

Equipment Type LOAD TAP CHANGER
Manufacturer GE PROLEC
Serial No. G1406-01
LTC Model No.
LTC for TC No. 312

Liquid Type OIL
LTC Gallons
Selector Gallons 279.00
Transfer/Diverter Gallons

ADDITIONAL EQUIPMENT

Conservator Tank No
Silica Gel Yes
Breather FREE
Top FPV (inch) 0.50 Plug
Bottom FPV (inch) 1.00 Valve

VISUAL INSPECTION

DATE	LEVEL	SAMPLE TEMP	TOP TEMP	P/V	PAINT	Tap Counter Reading	LEAKS
06/27/19	NORMAL	40	58	3.00	FAIR	44811	
06/22/20	NORMAL	32			FAIR	52824	NONE
06/09/21	NORMAL		51		FAIR	58278	NONE
06/06/22	NORMAL	33	41		FAIR	78240	NONE

FIELD SERVICE

DATE SERVICE

Additional Information 6/6/2022 9:12:00 AM CORROSIVE SULFUR TEST (48 HRS. @ 150 C): CORROSIVE 4b

Reason Not Tested

LIQUID SCREEN TEST DATA

DATE	SERVICE	ACID	IFT	DIEL 877	DIEL 1816	GAP	COLOR	SP. GRAV.	VISUAL	SEDIMENT
05/20/11		0.020 AC	40.2 AC	43 AC			0.50 AC	0.890 AC	CLEAR AC	NONE AC
05/24/12		0.020 AC	40.0 AC	35 AC			0.50 AC	0.890 AC	CLEAR AC	NONE AC
05/01/13		0.020 AC	40.1 AC	44 AC			0.50 AC	0.885 AC	CLEAR AC	NONE AC
06/27/18		0.030 AC	37.1 AC	50 AC			0.75 AC	0.880 AC	CLEAR AC	NONE AC
06/27/19		0.020 AC	37.4 AC	43 AC			0.50 AC	0.880 AC	CLEAR AC	NONE AC
06/22/20		0.020 AC	36.4 AC	44 AC			1.00 AC	0.880 AC	CLEAR AC	NONE AC
06/09/21		0.010 AC	37.3 AC	51 AC			0.50 AC	0.880 AC	CLEAR AC	NONE AC
06/06/22		0.030 AC	37.0 AC	37 AC			1.00 AC	0.884 AC	CLEAR AC	NONE AC

INHIBITOR CONTENT

DATE	PCT. BY WEIGHT
10/25/06	<0.02% UN

NOTE - STUDIES SHOW THAT A LEVEL OF 0.3% INHIBITOR IS OPTIMUM FOR PRESERVATION OF IN-SERVICE TRANSFORMER OILS. OILS WITH A LEVEL BELOW 0.08% ARE CONSIDERED TO BE UNINHIBITED.

LIQUID POWER FACTOR

DATE	25 C	100 C
05/01/13	0.020	0.396
06/27/18	0.005	0.330
06/27/19	0.081	1.460
06/22/20	0.007	0.354
06/09/21	0.001	0.206

KEY TO ABBREVIATIONS: AC - ACCEPTABLE QU - QUESTIONABLE UN - UNACCEPTABLE RS - RESAMPLE

NOTE: * After a result indicates that the test or service was performed by an outside source.

Customer 0554000 Brownsville Public Utilities
Sub-Name MIDTOWN
Location OUTDOOR/GROUND

S/N G1406-01
Mfg. GE PROLEC
Unit No. T2

Gallons
KVA

High Volt.
Low Volt.

KARL FISCHER TESTING MOISTURE CONTENT EXPRESSED IN PPM

DATE	AVG. TEMP	PPM	PCT.		MOISTURE BY DRY
			SATURATION	AC	WEIGHT PCT.
05/01/13		23	N/A	AC	N/A
06/27/18	38	27	N/A	AC	N/A
06/27/19	45	24	N/A	AC	N/A
06/22/20	37	26	N/A	AC	N/A
06/09/21	41	22	N/A	AC	N/A
06/06/22	38	24	N/A	AC	N/A

RECOMMENDATION RETEST 1 YEAR

The moisture content continues to be acceptable based on the equipment and liquid type. Continued normal monitoring is indicated.

FURAN ANALYSIS EXPRESSED IN PPB

DATE	5H2F	2FOL	2FAL	2ACF	5M2F	TOTAL
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GAS-IN-OIL ANALYSIS GAS CHROMATOGRAPHY EXPRESSED IN PPM

DATE	HYDROGEN	OXYGEN	NITROGEN	METHANE	CARBON		ETHANE	ETHYLENE	ACETYLENE	TOTAL COMBUST.	TOTAL GAS
					MONOXIDE	DIOXIDE					
06/02/05	8	30,015	62,958	3	9	502	ND	4	ND	24	93,499
06/27/18	36	16,969	58,558	17	115	1,729	1	9	ND	178	77,434
06/27/19	ND	29,043	82,574	31	264	3,729	3	11	ND	309	115,655
06/22/20	50	21,763	71,583	30	289	3,536	3	14	ND	386	97,268
06/09/21	59	19,050	70,368	37	293	3,682	3	14	ND	406	93,506
06/06/22	66	17,758	64,914	42	314	4,464	4	16	ND	442	87,578

RECOMMENDATION RETEST 1 YEAR

B-THE ANALYSIS OF THIS SAMPLE SHOWS NO SIGNIFICANT INCREASE IN THE COMBUSTIBLE GAS VOLUME. THIS INDICATES NORMAL OPERATION.

ICP METALS-IN-OIL EXPRESSED IN PPM

DATE	ALUMINUM	IRON	COPPER
06/02/05	<0.1	<0.03	0.04
10/25/06	<0.1	<0.03	0.06
06/27/18	<0.1	<0.03	<0.01
06/27/19	<0.1	<0.03	0.02
06/22/20	<0.1	<0.03	<0.01
06/09/21	<0.1	<0.03	<0.01

RECOMMENDATION

NO RECOMMENDATION IS POSSIBLE FOR THIS SAMPLE. WE ARE UNAWARE OF ANY PARAMETERS OR GUIDANCE THAT WOULD ENABLE US TO INTERPRET THESE RESULTS OR DETERMINE AN APPROPRIATE MONITORING SCHEDULE.

PCB CONTENT EXPRESSED IN PPM

DATE	1242	1254	1260	OTHER	TOTAL
06/22/20	ND	ND	ND	ND	ND
06/09/21	ND	ND	ND	ND	ND

COLOR LABEL: Green **CLASS:** NON-PCB

Results in mg/kg
 ND means None Detected
 (<2 mg/kg per ASTM D4059)