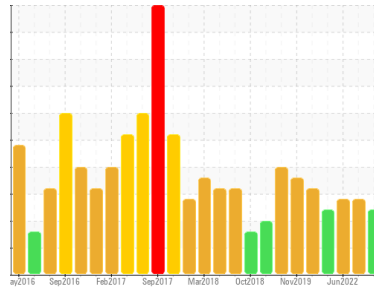


OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id
6734
 Component
Compressor
 Fluid
TULCO LUBSOIL LPG WI 100 (100 GAL)

DIAGNOSIS

Recommendation

The filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is a moderate amount of silt (particulates < 14 microns in size) present in the oil. Elemental level of silicon (Si) above normal.

Fluid Condition

The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		TO90002442	TO90002460	TO1003187
Sample Date	Client Info		01 Apr 2024	06 Nov 2023	06 Jun 2022
Machine Age	hrs	Client Info	67949	64365	52286
Oil Age	hrs	Client Info	0	0	5386
Oil Changed	Client Info		Filtered	Filtered	N/A
Sample Status			ATTENTION	ATTENTION	ABNORMAL

WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >50	4	<1	1
Chromium	ppm	ASTM D5185m >10	<1	<1	0
Nickel	ppm	ASTM D5185m	1	0	0
Titanium	ppm	ASTM D5185m	<1	0	0
Silver	ppm	ASTM D5185m	<1	<1	0
Aluminum	ppm	ASTM D5185m >25	3	3	0
Lead	ppm	ASTM D5185m >25	1	0	<1
Copper	ppm	ASTM D5185m >50	<1	<1	<1
Tin	ppm	ASTM D5185m >15	2	0	1
Vanadium	ppm	ASTM D5185m	<1	<1	0
Cadmium	ppm	ASTM D5185m	1	0	0

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m 0	<1	0	4
Barium	ppm	ASTM D5185m	3	6	0
Molybdenum	ppm	ASTM D5185m 0	<1	0	<1
Manganese	ppm	ASTM D5185m	<1	0	0
Magnesium	ppm	ASTM D5185m 0	1	<1	1
Calcium	ppm	ASTM D5185m	6	<1	0
Phosphorus	ppm	ASTM D5185m 0	5	9	23
Zinc	ppm	ASTM D5185m 0	<1	0	0
Sulfur	ppm	ASTM D5185m 0	9548	6738	15077

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >25	▲ 45	▲ 32	▲ 52
Sodium	ppm	ASTM D5185m	6	2	0
Potassium	ppm	ASTM D5185m >20	2	2	2
Water	%	ASTM D6304 >2.26	0.375	0.459	0.478
ppm Water	ppm	ASTM D6304 >22600	3756	4595.0	4783.2

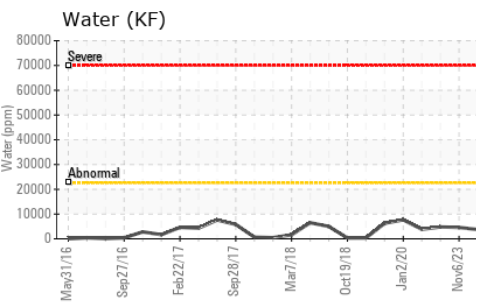
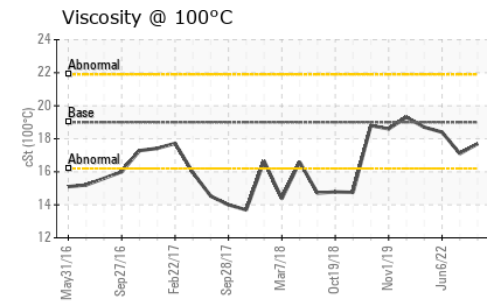
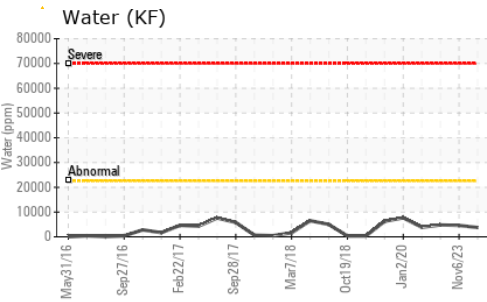
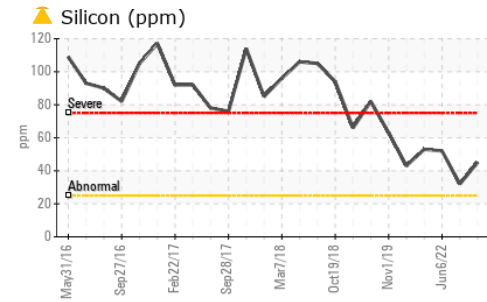
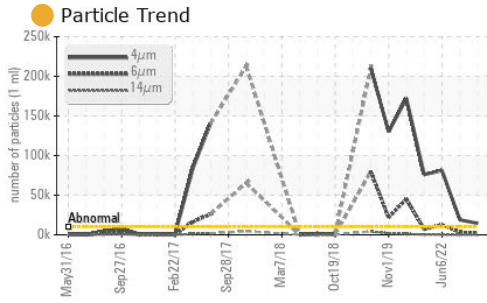
FLUID CLEANLINESS

	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>10000	● 14493	● 18954	▲ 81132
Particles >6µm	ASTM D7647	>2500	2340	● 3151	▲ 12618
Particles >14µm	ASTM D7647	>320	146	82	242
Particles >21µm	ASTM D7647	>80	29	12	26
Particles >38µm	ASTM D7647	>20	0	0	0
Particles >71µm	ASTM D7647	>4	0	0	0
Oil Cleanliness	ISO 4406 (c)	>20/18/15	● 21/18/14	● 21/19/14	▲ 24/21/15

FLUID DEGRADATION

	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	1.67	0.448	1.097

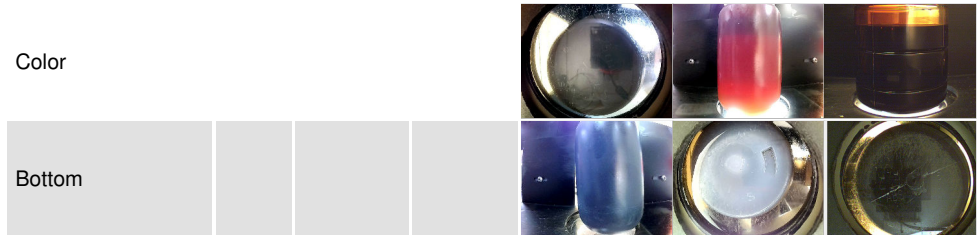
OIL ANALYSIS REPORT



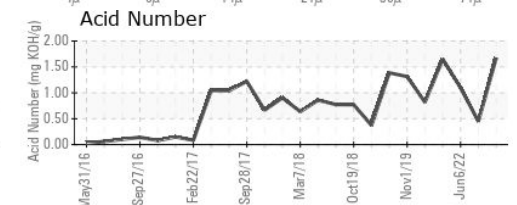
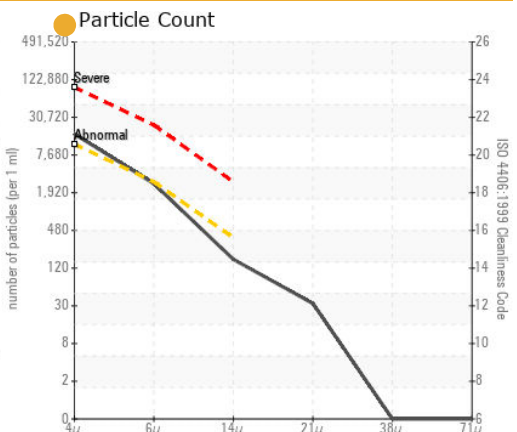
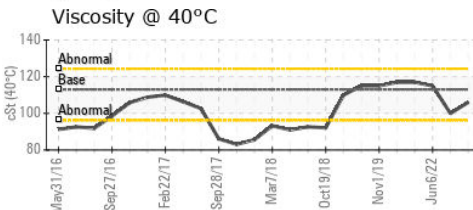
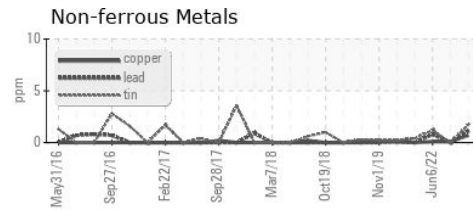
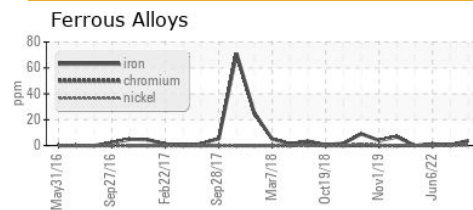
VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	LIGHT
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>2.26	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	113	106	115
Visc @ 100°C	cSt	ASTM D445	19	17.7	18.4
Viscosity Index (VI)	Scale	ASTM D2270	189	184	179

SAMPLE IMAGES	method	limit/base	current	history1	history2
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GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : TO90002442 **Received** : 11 Apr 2024
Lab Number : 06145945 **Tested** : 12 Apr 2024
Unique Number : 10976023 **Diagnosed** : 15 Apr 2024 - Don Baldrige
Test Package : IND 2 (Additional Tests: KF, KV100, PrtCount, VI)

MORROW RENEWABLES
 8601 N JASMAN RD
 EDINBURG, TX
 US 78539
 Contact: JESUS CASAREZ
 jcasarez@morrowrenew.com

To discuss this sample report, contact Customer Service at 1-800-237-1369.

* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

T:
F: