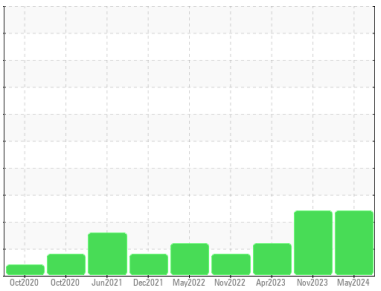
OIL ANALYSIS REPORT

Sample Rating Trend



DEGRADATION

Area
Marcus Hook/Cryogenic/Compressor
Machine Id
CRYOGENIC COMPRESSOR 40-C-301E
Component
Rotary Compressor
Fluid
TULCO LUBSOIL SYN RL WI 100 (385 GAL)

DIAGNOSIS

Recommendation
The oil is near the end of it`s useful service life, recommend schedule an oil change. We recommend an early resample to monitor this condition.

Wear
All component wear rates are normal.

Contamination
There is a high amount of silt (particulates < 14 microns in size) present in the oil.

Fluid Condition
The AN level is at the top-end of the recommended limit.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**TO90002163**	TO60001817	TO90003056
Sample Date		Client Info		**09 May 2024**	05 Nov 2023	25 Apr 2023
Machine Age	hrs	Client Info		**0**	0	0
Oil Age	hrs	Client Info		**0**	0	0
Oil Changed		Client Info		**N/A**	N/A	N/A
Sample Status				**ABNORMAL**	ABNORMAL	ABNORMAL

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>70	**47**	57	32
Chromium	ppm	ASTM D5185m	>10	**0**	0	0
Nickel	ppm	ASTM D5185m		**0**	<1	0
Titanium	ppm	ASTM D5185m		**0**	0	0
Silver	ppm	ASTM D5185m		**<1**	0	0
Aluminum	ppm	ASTM D5185m	>3	**0**	<1	0
Lead	ppm	ASTM D5185m	>4	**<1**	0	<1
Copper	ppm	ASTM D5185m	>20	**<1**	0	0
Tin	ppm	ASTM D5185m	>3	**1**	1	<1
Vanadium	ppm	ASTM D5185m		**<1**	0	0
Cadmium	ppm	ASTM D5185m		**0**	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		**0**	0	0
Barium	ppm	ASTM D5185m		**0**	0	0
Molybdenum	ppm	ASTM D5185m		**0**	0	0
Manganese	ppm	ASTM D5185m		**<1**	<1	<1
Magnesium	ppm	ASTM D5185m		**0**	4	2
Calcium	ppm	ASTM D5185m		**191**	251	168
Phosphorus	ppm	ASTM D5185m	1500	**1403**	1318	1085
Zinc	ppm	ASTM D5185m		**106**	141	95
Sulfur	ppm	ASTM D5185m		**0**	203	201

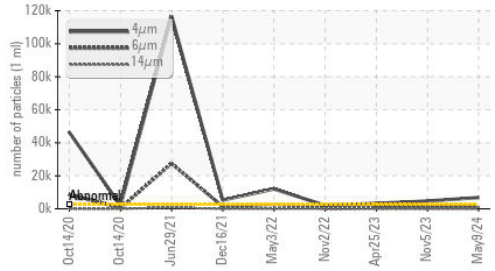
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>45	**2**	3	2
Sodium	ppm	ASTM D5185m		**19**	26	20
Potassium	ppm	ASTM D5185m	>20	**2**	<1	1
Water	%	ASTM D6304	>2.26	**0.066**	0.026	0.029
ppm Water	ppm	ASTM D6304	>22600	**663**	266.8	291.4

FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>2500	▲ **6831**	● 4735	▲ 3303
Particles >6µm		ASTM D7647	>320	▲ **1515**	▲ 974	▲ 781
Particles >14µm		ASTM D7647	>80	**28**	13	28
Particles >21µm		ASTM D7647	>20	**4**	3	5
Particles >38µm		ASTM D7647	>4	**0**	0	1
Particles >71µm		ASTM D7647	>3	**0**	0	0
Oil Cleanliness		ISO 4406 (c)	>18/15/13	▲ **20/18/12**	▲ 19/17/11	▲ 19/17/12

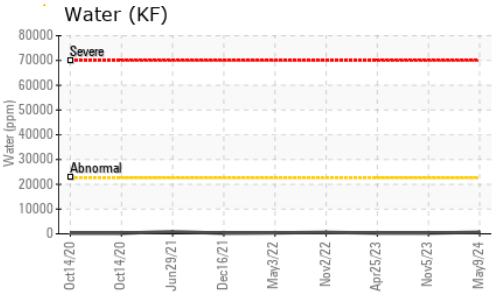
FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	0.04	▲ **1.065**	▲ 1.279	0.553

OIL ANALYSIS REPORT

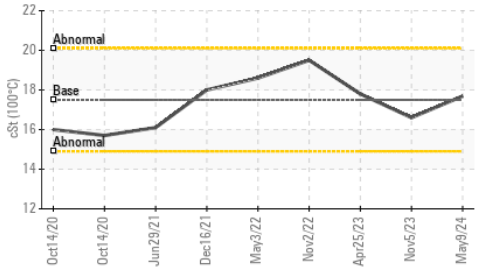
Particle Trend



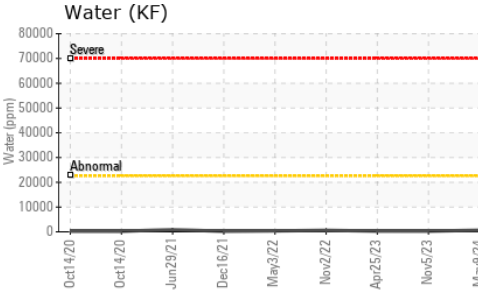
Water (KF)



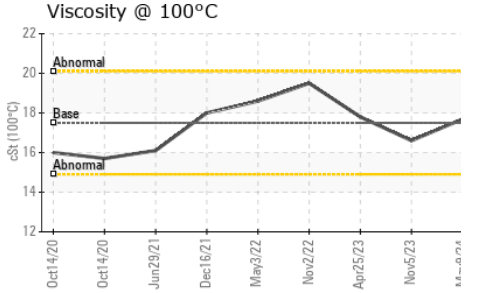
Viscosity @ 100°C



Water (KF)



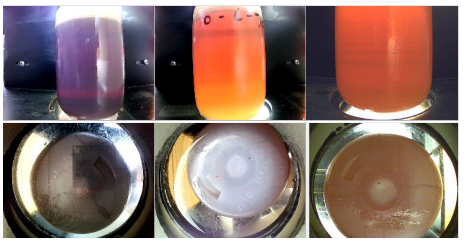
Viscosity @ 100°C



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

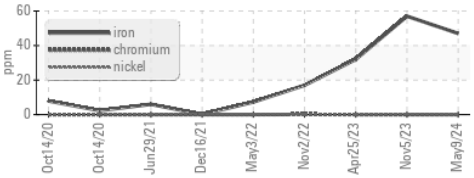
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	97	**110**	107	112
Visc @ 100°C	cSt	ASTM D445	17.5	**17.69**	16.6	17.8
Viscosity Index (VI)	Scale	ASTM D2270	198	**177**	168	176

SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					

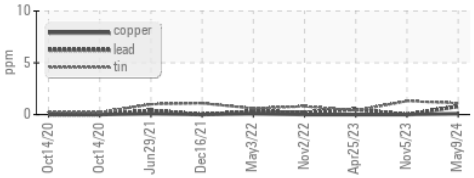


GRAPHS

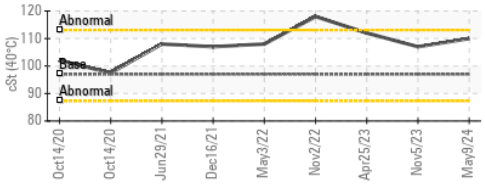
Ferrous Alloys



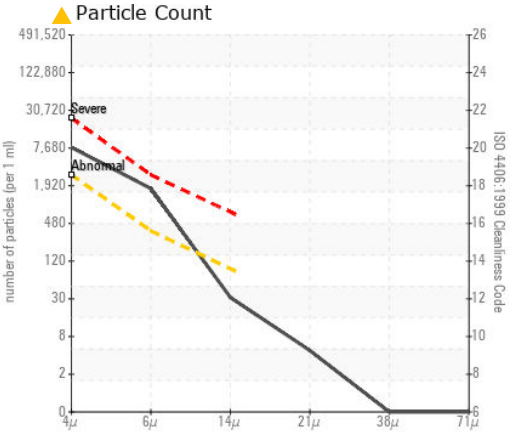
Non-ferrous Metals



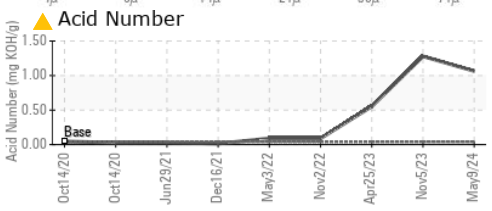
Viscosity @ 40°C



Particle Count



Acid Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : TO90002163
Lab Number : 06182906
Unique Number : 11034232
Test Package : IND 2 (Additional Tests: KF, KV100, PrtCount, VI)

Received : 17 May 2024
Tested : 28 May 2024
Diagnosed : 28 May 2024 - Angela Borella

ENERGY TRANSFER - MARCUS HOOK
2ND & GREEN STREETS
MARCUS HOOK, PA
US 19061
Contact: CHRISTOPHER HOFFA
christopher.hoffa@energytransfer.com
T:
F:

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)

Report Id: ETCMHOOK [WUSCAR] 06182906 (Generated: 05/28/2024 17:50:33) Rev: 1

Submitted By: ERIC THORNTON