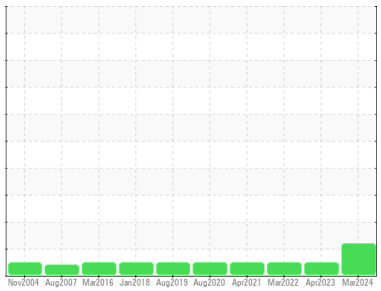
OIL ANALYSIS REPORT

Sample Rating Trend



ISO

Area
Thompson Falls
Machine Id
THF02 Governor
Component
Case Drain Governor System
Fluid
LUBRICATION ENG 6802 MULTEC IND OIL 46 (40 GAL)

DIAGNOSIS

Recommendation
We recommend you service the filters on this component. Resample at the next service interval to monitor.

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 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		**WC0757775**	WCI2326281	WCI2326107
Sample Date		Client Info		**26 Mar 2024**	21 Apr 2023	29 Mar 2022
Machine Age	yrs	Client Info		**21**	20	19
Oil Age	yrs	Client Info		**21**	20	19
Oil Changed		Client Info		**Not Changd**	Not Changd	Not Changd
Sample Status				**ABNORMAL**	NORMAL	NORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Water		WC Method	>0.1	**NEG**	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>50	**<1**	<1	<1
Chromium	ppm	ASTM D5185m	>10	**<1**	0	0
Nickel	ppm	ASTM D5185m	>10	**0**	0	0
Titanium	ppm	ASTM D5185m		**<1**	0	0
Silver	ppm	ASTM D5185m		**<1**	0	0
Aluminum	ppm	ASTM D5185m	>3	**2**	1	<1
Lead	ppm	ASTM D5185m	>75	**<1**	<1	<1
Copper	ppm	ASTM D5185m	>15	**<1**	<1	<1
Tin	ppm	ASTM D5185m	>55	**<1**	0	0
Antimony	ppm	ASTM D5185m	>5	**---**	---	---
Vanadium	ppm	ASTM D5185m		**<1**	0	0
Cadmium	ppm	ASTM D5185m		**0**	0	0

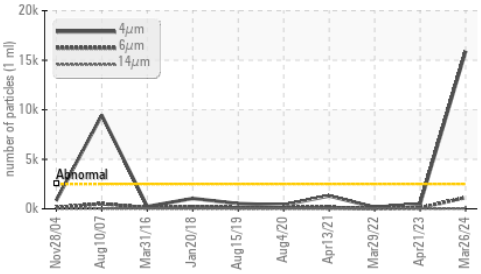
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		**0**	0	<1
Barium	ppm	ASTM D5185m		**<1**	0	0
Molybdenum	ppm	ASTM D5185m		**0**	0	0
Manganese	ppm	ASTM D5185m		**0**	0	0
Magnesium	ppm	ASTM D5185m		**1**	1	0
Calcium	ppm	ASTM D5185m		**122**	110	115
Phosphorus	ppm	ASTM D5185m		**341**	315	343
Zinc	ppm	ASTM D5185m		**199**	194	188
Sulfur	ppm	ASTM D5185m		**986**	997	813

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>8	**0**	<1	<1
Sodium	ppm	ASTM D5185m		**0**	0	2
Potassium	ppm	ASTM D5185m	>20	**2**	<1	0

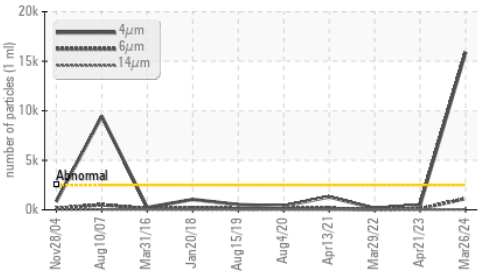
FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>2500	**15897**	495	156
Particles >6µm		ASTM D7647	>640	**1136**	89	37
Particles >14µm		ASTM D7647	>80	**29**	8	9
Particles >21µm		ASTM D7647	>20	**5**	3	3
Particles >38µm		ASTM D7647	>4	**0**	0	0
Particles >71µm		ASTM D7647	>3	**0**	0	0
Oil Cleanliness		ISO 4406 (c)	>18/16/13	**21/17/12**	16/14/10	14/12/10

OIL ANALYSIS REPORT

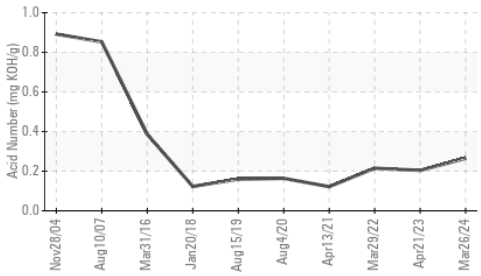
Particle Trend



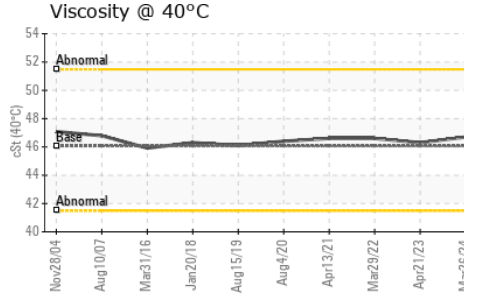
Particle Trend



Acid Number



Viscosity @ 40°C

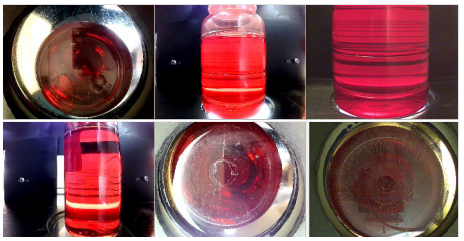


FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045		**0.265**	0.204	0.215

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	>0.1	**NEG**	NEG	NEG
Free Water	scalar	*Visual		**NEG**	NEG	NEG

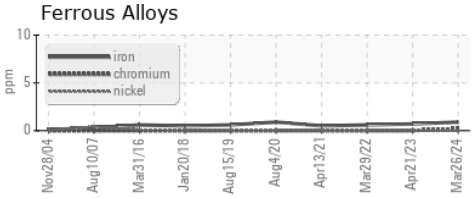
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	46.06	**46.7**	46.3	46.6

SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					

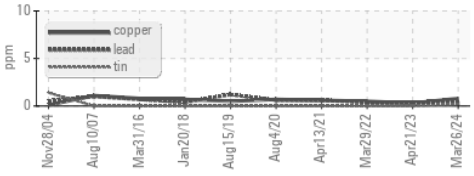


GRAPHS

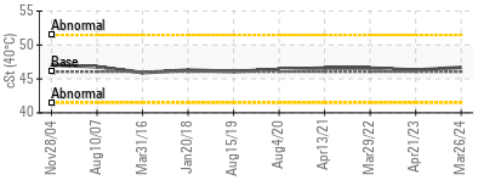
Ferrous Alloys



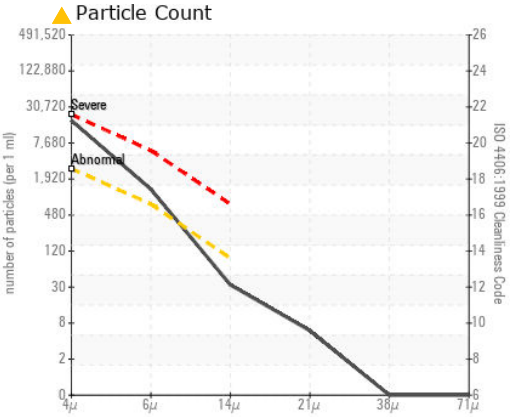
Non-ferrous Metals



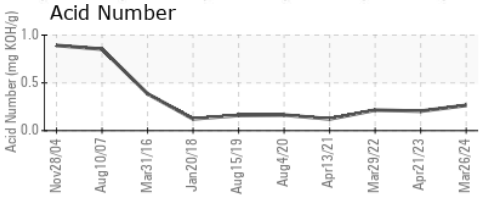
Viscosity @ 40°C



Particle Count



Acid Number



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0757775 **Received** : 08 Apr 2024
Lab Number : 06142199 **Tested** : 11 Apr 2024
Unique Number : 10967007 **Diagnosed** : 11 Apr 2024 - Don Baldridge
Test Package : IND 2 (Additional Tests: PrtCount)

Certificate L2367

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)

NORTHWESTERN ENERGY
6700 RAINBOW DAM RD
GREAT FALLS, MT
US 59404
Contact: STANLEY BOGNATZ
srb@mbesi.com
T: (570)575-9252
F: (570)227-0014

Report Id: PPLBUT [WUSCAR] 06142199 (Generated: 04/12/2024 06:50:58) Rev: 1
Contact/Location: STANLEY BOGNATZ - PPLBUT