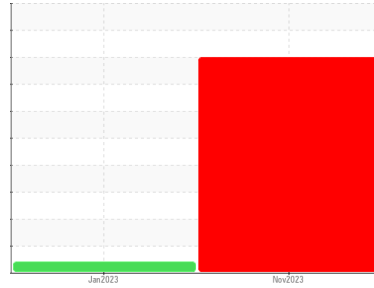


Area
Tractors
Machine Id
UTL003
Component
Front Left Wheel Hub
Fluid
PETRO CANADA TRAXON 80W90 (--- LTR)



DIAGNOSIS

Recommendation

We advise that you check all areas where dirt can enter the system. We recommend that you drain the oil from the component if this has not already been done. Confirm the source of the lubricant being utilized for top-up/fill. We recommend an early resample to monitor this condition.

Wear

Chromium and iron and nickel and lead ppm levels are abnormal. Aluminum ppm levels are noted. Titanium ppm levels are marginal. Gear wear is indicated. Bearing and/or bushing wear is indicated.

Contamination

Lithium (Li) level abnormal at 29ppm., indicates possible grease contamination. Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress. The water content is negligible. High amount of ingressed dirt has caused abrasive wear to the component.

Fluid Condition

Viscosity of sample indicates oil is within SAE 80W140 range, advise investigate. This plus the additive levels indicates that this is not the same brand, or type of oil as reported. The oil is no longer serviceable as a result of the abnormal and/or severe wear.

SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	PC0075074	PC0067299	---
Sample Date	Client Info	14 Nov 2023	25 Jan 2023	---
Machine Age	hrs	Client Info	0	---
Oil Age	hrs	Client Info	0	---
Oil Changed	Client Info	N/A	N/A	---
Sample Status		ABNORMAL	ABNORMAL	---

WEAR METALS

method	limit/base	current	history1	history2
PQ	ASTM D8184*	1061	396	---
Iron	ppm	ASTM D5185(m) >500	▲ 1176	793
Chromium	ppm	ASTM D5185(m) >8	▲ 12	7
Nickel	ppm	ASTM D5185(m) >5	▲ 6	9
Titanium	ppm	ASTM D5185(m)	▲ 19	7
Silver	ppm	ASTM D5185(m)	<1	0
Aluminum	ppm	ASTM D5185(m) >5	▲ 161	71
Lead	ppm	ASTM D5185(m) >5	▲ 7	4
Copper	ppm	ASTM D5185(m) >50	46	26
Tin	ppm	ASTM D5185(m)	4	3
Antimony	ppm	ASTM D5185(m) >5	19	4
Vanadium	ppm	ASTM D5185(m)	<1	<1
Beryllium	ppm	ASTM D5185(m)	0	0
Cadmium	ppm	ASTM D5185(m)	0	0

ADDITIVES

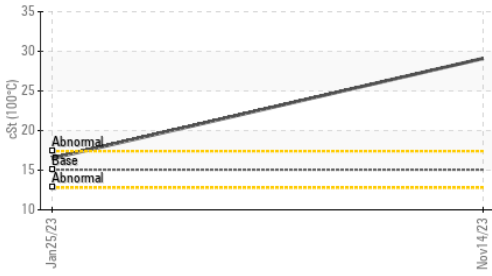
method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m) 243	37	41
Barium	ppm	ASTM D5185(m) 1	3	6
Molybdenum	ppm	ASTM D5185(m)	6	6
Manganese	ppm	ASTM D5185(m)	13	8
Magnesium	ppm	ASTM D5185(m) 2	76	35
Calcium	ppm	ASTM D5185(m) 6	399	125
Phosphorus	ppm	ASTM D5185(m) 987	584	708
Zinc	ppm	ASTM D5185(m) 1	15	21
Sulfur	ppm	ASTM D5185(m) 21530	20325	20855
Lithium	ppm	ASTM D5185(m)	▲ 29	▲ 52

CONTAMINANTS

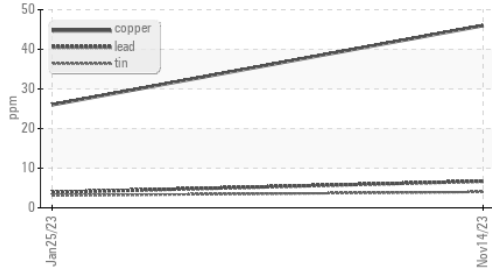
method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m) >25	▲ 644	265
Sodium	ppm	ASTM D5185(m)	68	27
Potassium	ppm	ASTM D5185(m) >20	50	25
Water	%	ASTM D6304* >0.2	0.148	NEG
ppm Water	ppm	ASTM D6304* >2000	1482	---

OIL ANALYSIS REPORT

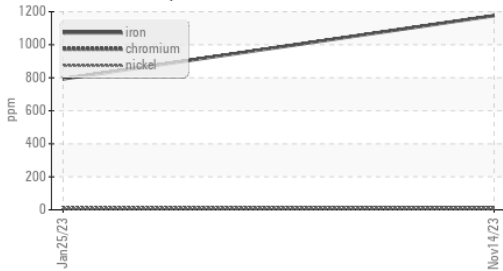
▲ Viscosity @ 100°C



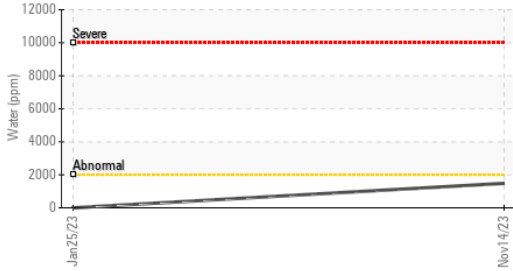
▲ Non-ferrous Metals



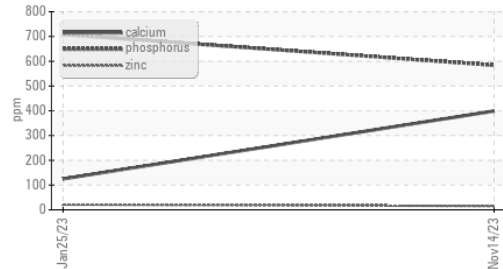
▲ Ferrous Alloys



Water (KF)



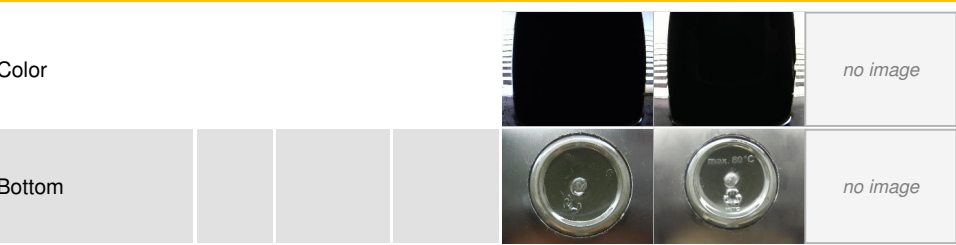
Additives



VISUAL	method	limit/base	current	history1	history2	
White Metal	scalar	Visual*	NONE	LIGHT	NONE	---
Yellow Metal	scalar	Visual*	NONE	LIGHT	NONE	---
Precipitate	scalar	Visual*	NONE	NONE	NONE	---
Silt	scalar	Visual*	NONE	VLITE	NONE	---
Debris	scalar	Visual*	NONE	NONE	NONE	---
Sand/Dirt	scalar	Visual*	NONE	NONE	NONE	---
Appearance	scalar	Visual*	NORML	NORML	NORML	---
Odor	scalar	Visual*	NORML	NORML	NORML	---
Emulsified Water	scalar	Visual*	>0.2	.2%	NEG	---
Free Water	scalar	Visual*		NEG	NEG	---

FLUID PROPERTIES	method	limit/base	current	history1	history2	
Visc @ 40°C	cSt	ASTM D7279(m)	141.0	▲ 300	161	---
Visc @ 100°C	cSt	ASTM D7279(m)	15.06	▲ 29.1	16.5	---
Viscosity Index (VI)	Scale	ASTM D2270*	108	▲ 131	108	---

SAMPLE IMAGES

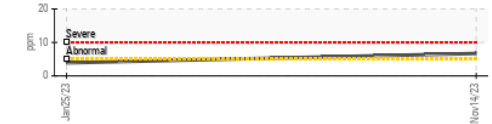


GRAPHS

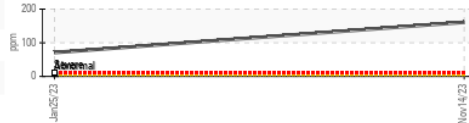
▲ Iron (ppm)



▲ Lead (ppm)



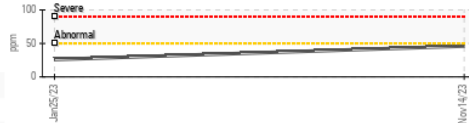
▲ Aluminum (ppm)



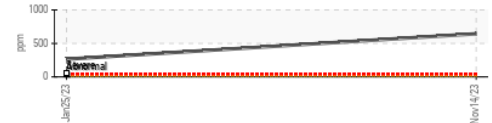
▲ Chromium (ppm)



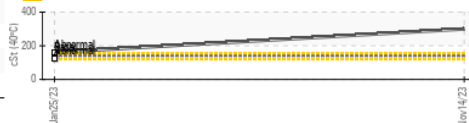
Copper (ppm)



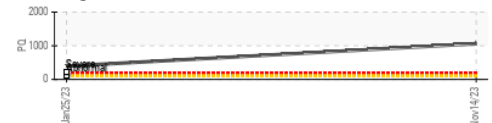
▲ Silicon (ppm)



▲ Viscosity @ 40°C



PQ



ISO 17025:2017
Accredited
Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PC0075074 **Received** : 21 Nov 2023
Lab Number : 02597944 **Diagnosed** : 23 Nov 2023
Unique Number : 5683024 **Diagnostician** : Kevin Marson
Test Package : MOB 1 (Additional Tests: KF, KV100, PQ, VI)

Lakeshore Gold Timmins West

Timmins, ON
CA
Contact: Adam Koscielak
adam.koscielak@HFSinclair.com

To discuss this sample report, contact Customer Service at 1-800-268-2131.
 Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab.
 Validity of results and interpretation are based on the sample and information as supplied.

T:
F: