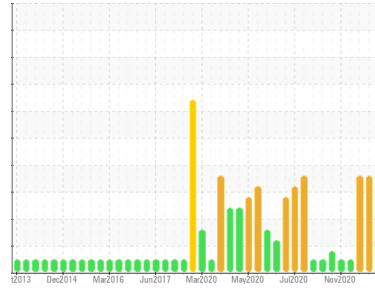
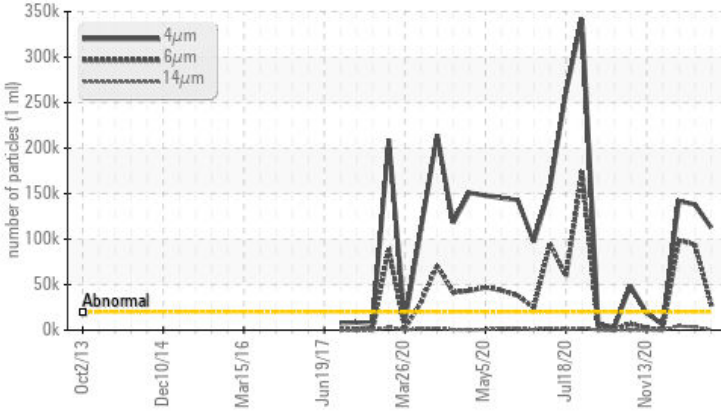


Area
Fwd Machinery Space [450204377]
 Machine Id
Pump Fire Water (Port) - Gearbox (S/N Sample Tag PA-71001A-S2)
 Component
Gearbox
 Fluid
PETRO CANADA PREMIUM R&O 220 (98 LTR)



COMPONENT CONDITION SUMMARY

▲ Particle Trend



RECOMMENDATION

We recommend you service the filters on this component. We recommend an early resample to monitor this condition.

PROBLEMATIC TEST RESULTS

Sample Status			ABNORMAL	SEVERE	SEVERE
Particles >4µm	ASTM D7647	>20000	▲ 112829	▲ 141838	▲ 138204
Particles >6µm	ASTM D7647	>5000	▲ 29557	● 98672	● 94136
Oil Cleanliness	ISO 4406 (c)	>21/19/16	▲ 24/22/16	● 24/24/19	● 24/24/19

Customer Id: TERHAM
 Sample No.: PC
 Lab Number: 02584739
 Test Package: MAR 2



To manage this report scan the QR code

To discuss the diagnosis or test data:
 Bill Quesnel CLS,OMA II,MLA-III,LLA-I +1
 (289)291-4641 x4641
Bill.Quesnel@wearcheck.com

To change component or sample information:
 Gloria Gonzalez +1 (289)291-4643 x4643
gloria.gonzalez@wearcheck.com

RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Change Filter	---	---	?	We recommend you service the filters on this component.
Resample	---	---	?	We recommend an early resample to monitor this condition.

HISTORICAL DIAGNOSIS

30 Jan 2023 Diag: Kevin Marson

ISO



Check seals and/or filters for points of contaminant entry. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. We recommend you service the filters on this component. Resample in 30-45 days to monitor this situation. All component wear rates are normal. Particles >6µm are severely high. Oil Cleanliness are severely high. Particles >14µm are abnormally high. Particles >4µm are abnormally high. The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

view report



30 Jan 2023 Diag: Kevin Marson

ISO



Check seals and/or filters for points of contaminant entry. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. We recommend you service the filters on this component. Resample in 30-45 days to monitor this situation. All component wear rates are normal. Particles >6µm are severely high. Oil Cleanliness are severely high. Particles >14µm are abnormally high. Particles >4µm are abnormally high. The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

view report



25 Oct 2021 Diag: Bill Quesnel

NORMAL

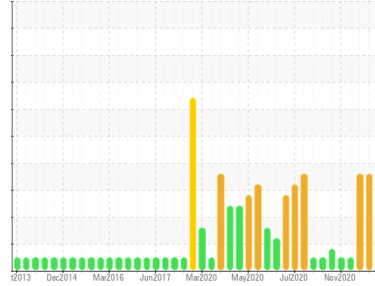


Resample at the next service interval to monitor. All component wear rates are normal. The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report



Area
Fwd Machinery Space [450204377]
 Machine Id
Pump Fire Water (Port) - Gearbox (S/N Sample Tag PA-71001A-S2)
 Component
Gearbox
 Fluid
PETRO CANADA PREMIUM R&O 220 (98 LTR)



DIAGNOSIS

Recommendation
 We recommend you service the filters on this component. We recommend an early resample to monitor this condition.

Wear
 All component wear rates are normal.

Contamination
 There is a moderate amount of silt (particulates < 14 microns in size) present in the oil. The water content is negligible.

Fluid Condition
 The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number	Client Info			PC	PC	PC
Sample Date	Client Info			08 Sep 2023	30 Jan 2023	30 Jan 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	SEVERE	SEVERE

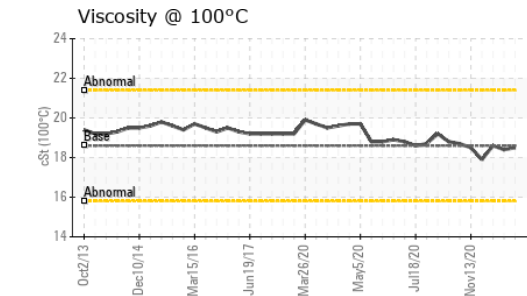
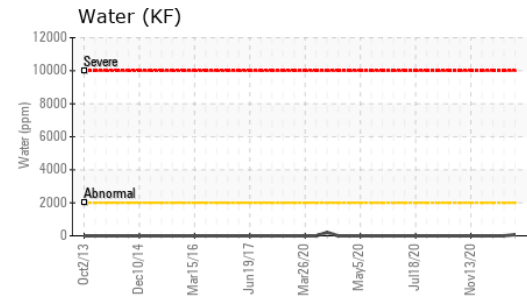
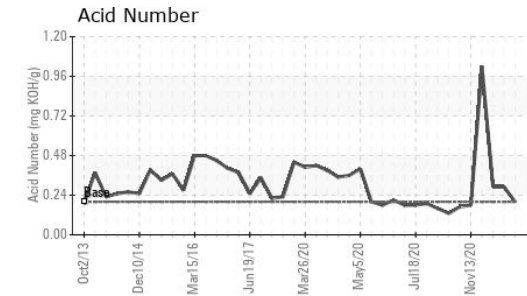
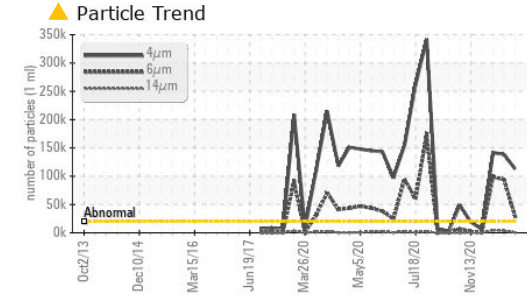
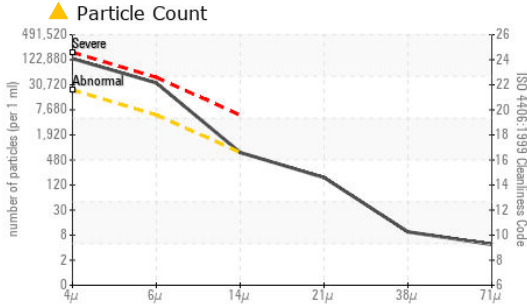
WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184*		50	0	1
Iron	ppm	ASTM D5185(m)	>150	5	2	2
Chromium	ppm	ASTM D5185(m)	>10	0	0	0
Nickel	ppm	ASTM D5185(m)	>10	0	0	<1
Titanium	ppm	ASTM D5185(m)		0	0	0
Silver	ppm	ASTM D5185(m)		0	0	0
Aluminum	ppm	ASTM D5185(m)	>5	0	0	0
Lead	ppm	ASTM D5185(m)	>65	1	1	1
Copper	ppm	ASTM D5185(m)	>80	<1	0	0
Tin	ppm	ASTM D5185(m)	>8	0	0	0
Antimony	ppm	ASTM D5185(m)	>5	0	<1	<1
Vanadium	ppm	ASTM D5185(m)		0	0	0
Beryllium	ppm	ASTM D5185(m)		0	0	0
Cadmium	ppm	ASTM D5185(m)		0	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)		2	2	2
Barium	ppm	ASTM D5185(m)		0	0	0
Molybdenum	ppm	ASTM D5185(m)		0	0	0
Manganese	ppm	ASTM D5185(m)		0	0	0
Magnesium	ppm	ASTM D5185(m)	0	<1	0	0
Calcium	ppm	ASTM D5185(m)		2	0	0
Phosphorus	ppm	ASTM D5185(m)	0	17	16	19
Zinc	ppm	ASTM D5185(m)		5	2	2
Sulfur	ppm	ASTM D5185(m)	500	1484	1632	1780
Lithium	ppm	ASTM D5185(m)		<1	<1	<1

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>20	2	1	1
Sodium	ppm	ASTM D5185(m)		<1	0	0
Potassium	ppm	ASTM D5185(m)	>20	0	0	0
Water	%	ASTM D6304*	>0.2	0.006	---	---
ppm Water	ppm	ASTM D6304*	>2000	69.5	---	---

FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>20000	▲ 112829	▲ 141838	▲ 138204
Particles >6µm		ASTM D7647	>5000	▲ 29557	● 98672	● 94136
Particles >14µm		ASTM D7647	>640	638	▲ 4389	▲ 3463
Particles >21µm		ASTM D7647	>160	160	84	55
Particles >38µm		ASTM D7647	>40	8	0	0
Particles >71µm		ASTM D7647	>10	4	0	0
Oil Cleanliness		ISO 4406 (c)	>21/19/16	▲ 24/22/16	● 24/24/19	● 24/24/19

OIL ANALYSIS REPORT



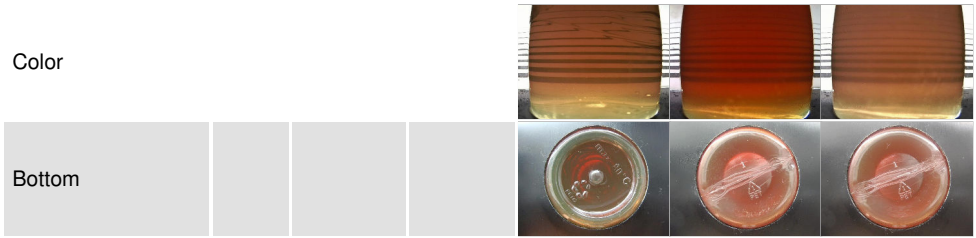
FLUID DEGRADATION

method	limit/base	current	history1	history2
Acid Number (AN) mg KOH/g	ASTM D974*	0.20	0.29	0.29
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	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	NEG	NEG
Free Water	scalar Visual*	NEG	NEG	NEG

FLUID PROPERTIES

method	limit/base	current	history1	history2
Visc @ 40°C	cSt ASTM D7279(m)	206.5	211	211
Visc @ 100°C	cSt ASTM D7279(m)	18.6	18.4	18.6
Viscosity Index (VI)	Scale ASTM D2270*	96	96	97

SAMPLE IMAGES



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PC
Lab Number : 02584739
Unique Number : 5645804
Test Package : MAR 2 (Additional Tests: KF, KV100, PQ, PrtCount, VI)

Suncor - Terra Nova Projects
 Scotia Centre, 235 Water Strret
 St. John's, NL
 CA A1C 1B6
 Contact: Josh Hynes
 joshynes@suncor.com
 T: (709)778-3575
 F: (709)724-2835

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.