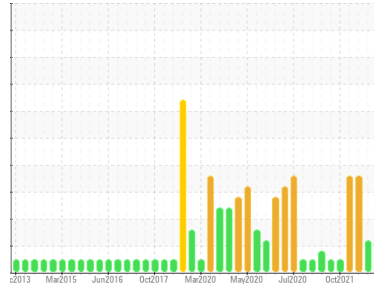


Area
Fwd Machinery Space [450240133]
Machine Id
Pump Fire Water (Port) - Gearbox (S/N Sample Tag PA-71001A-S2)
Component
Gearbox
Fluid
PETRO CANADA PREMIUM R&O 220 (98 LTR)



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.

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	15 Dec 2023	08 Sep 2023	30 Jan 2023
Machine Age	hrs	0	0	0
Oil Age	hrs	0	0	0
Oil Changed	Client Info	N/A	N/A	N/A
Sample Status		ABNORMAL	ABNORMAL	SEVERE

CONTAMINATION

method	limit/base	current	history1	history2
Water	WC Method >0.2	NEG	NEG	NEG

WEAR METALS

method	limit/base	current	history1	history2
PQ	ASTM D8184*	0	50	0
Iron	ppm ASTM D5185(m) >150	4	5	2
Chromium	ppm ASTM D5185(m) >10	0	0	0
Nickel	ppm ASTM D5185(m) >10	0	0	0
Titanium	ppm ASTM D5185(m)	0	0	0
Silver	ppm ASTM D5185(m)	0	0	0
Aluminum	ppm ASTM D5185(m) >5	<1	0	0
Lead	ppm ASTM D5185(m) >65	2	1	1
Copper	ppm ASTM D5185(m) >80	<1	<1	0
Tin	ppm ASTM D5185(m) >8	0	0	0
Antimony	ppm ASTM D5185(m) >5	0	0	<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

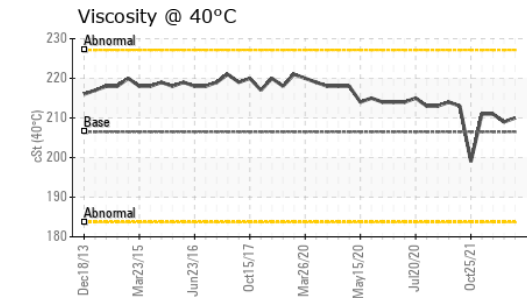
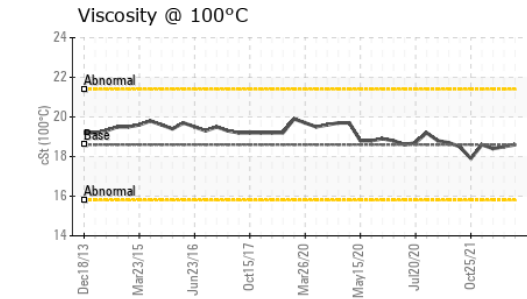
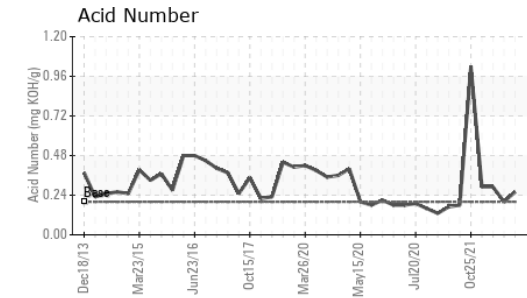
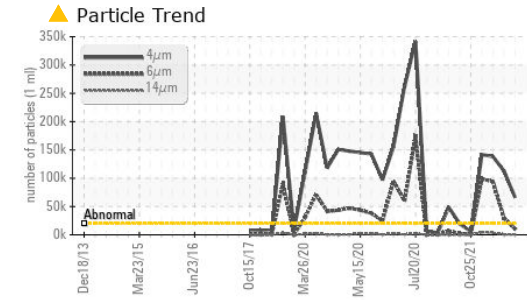
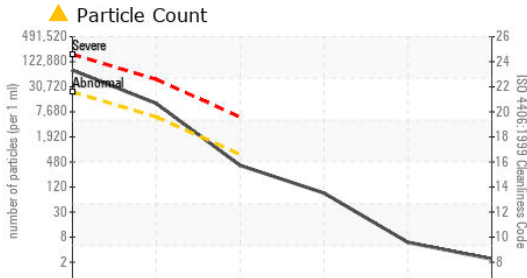
ADDITIVES

method	limit/base	current	history1	history2
Boron	ppm ASTM D5185(m)	1	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	<1	0
Calcium	ppm ASTM D5185(m)	<1	2	0
Phosphorus	ppm ASTM D5185(m) 0	14	17	16
Zinc	ppm ASTM D5185(m)	2	5	2
Sulfur	ppm ASTM D5185(m) 500	1555	1484	1632
Lithium	ppm ASTM D5185(m)	<1	<1	<1

CONTAMINANTS

method	limit/base	current	history1	history2
Silicon	ppm ASTM D5185(m) >20	<1	2	1
Sodium	ppm ASTM D5185(m)	0	<1	0
Potassium	ppm ASTM D5185(m) >20	2	0	0

OIL ANALYSIS REPORT



ISO 17025:2017
Accredited
Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PC
Lab Number : 02609537
Unique Number : 5710623
Test Package : MAR 2 (Additional Tests: KV100, PQ, PrtCount, TAN Man, VI)

Received : 17 Jan 2024

Diagnosed : 19 Jan 2024

Diagnostician : Kevin Marson

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.

FLUID CLEANLINESS	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>20000	▲ 66116	▲ 112829	▲ 141838
Particles >6µm	ASTM D7647	>5000	▲ 10620	▲ 29557	● 98672
Particles >14µm	ASTM D7647	>640	348	638	▲ 4389
Particles >21µm	ASTM D7647	>160	76	160	84
Particles >38µm	ASTM D7647	>40	5	8	0
Particles >71µm	ASTM D7647	>10	2	4	0
Oil Cleanliness	ISO 4406 (c)	>21/19/16	▲ 23/21/16	▲ 24/22/16	● 24/24/19

FLUID DEGRADATION	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g ASTM D974*	0.20	0.26	0.20	0.29

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	VLITE	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*	>0.2	NEG	.2%	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	210	209	211
Visc @ 100°C	cSt ASTM D7279(m)	18.6	18.6	18.5	18.4
Viscosity Index (VI)	Scale ASTM D2270*	96	98	97	96

SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					

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