

Area

Fwd Machinery Space

Machine Id

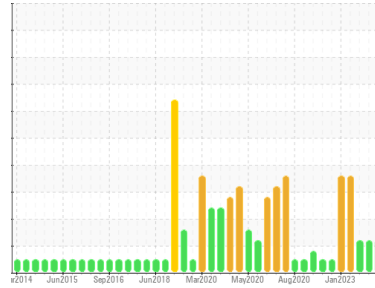
Pump Fire Water (Port) - Gearbox (S/N Sample Tag PA-71001A-S2)

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. The ferrography results are normal indicating no abnormal wear in the system.

Contaminants

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

Oil 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	PC0076413	PC	PC
Sample Date	Client Info	12 Feb 2024	15 Dec 2023	08 Sep 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	ABNORMAL

CONTAMINATION

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

WEAR METALS

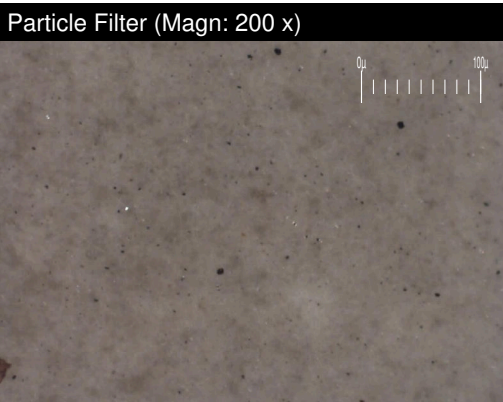
method	limit/base	current	history1	history2
PQ	ASTM D8184*	0	0	50
Iron	ppm ASTM D5185(m) >150	5	4	5
Chromium	ppm ASTM D5185(m) >10	0	0	0
Nickel	ppm ASTM D5185(m) >10	<1	0	0
Titanium	ppm ASTM D5185(m)	0	0	0
Silver	ppm ASTM D5185(m)	0	0	0
Aluminum	ppm ASTM D5185(m) >5	<1	<1	0
Lead	ppm ASTM D5185(m) >65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

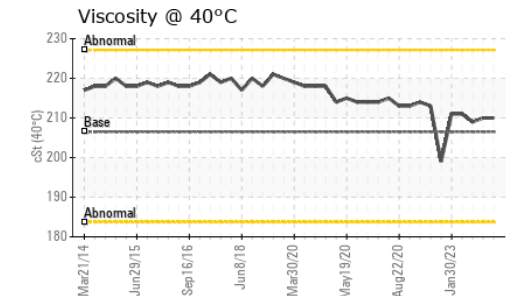
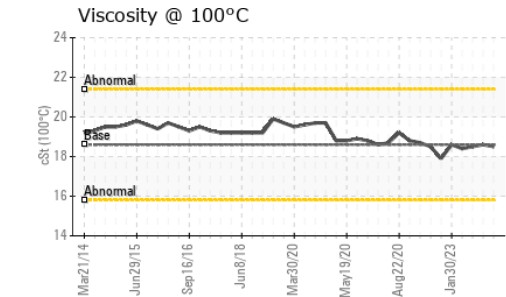
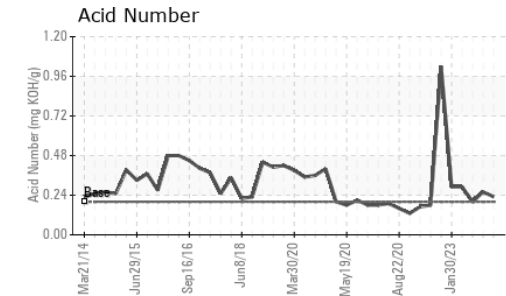
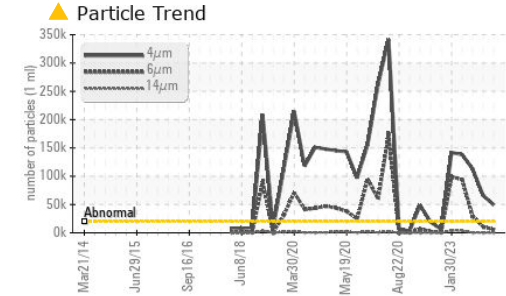
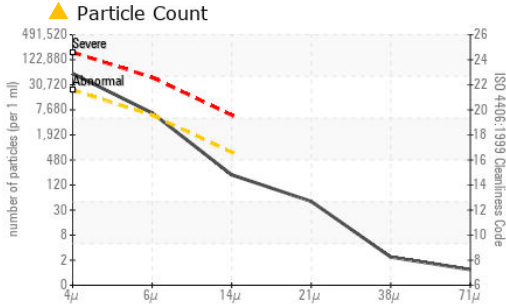
method	limit/base	current	history1	history2
Boron	ppm ASTM D5185(m)	2	1	2
Barium	ppm ASTM D5185(m)	0	0	0
Molybdenum	ppm ASTM D5185(m)	0	0	0
Manganese	ppm ASTM D5185(m)	0	0	0
Magnesium	ppm ASTM D5185(m) 0	0	<1	<1
Calcium	ppm ASTM D5185(m)	<1	<1	2
Phosphorus	ppm ASTM D5185(m) 0	16	14	17
Zinc	ppm ASTM D5185(m)	2	2	5
Sulfur	ppm ASTM D5185(m) 500	2115	1555	1484
Lithium	ppm ASTM D5185(m)	<1	<1	<1

CONTAMINANTS

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



OIL ANALYSIS REPORT



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PC0076413 **Received** : 14 Feb 2024
Lab Number : **02615810** **Tested** : 15 Feb 2024
Unique Number : 5724905 **Diagnosed** : 15 Feb 2024 - Kevin Marson
Test Package : MAR 3 (Additional Tests: BottomAnalysis, FilterPatch, KV100, PrtCount, PrtFilter, TAN Man, VContact)

Suncor - Terra Nova Projects
 Scotia Centre, 235 Water Street
 St. John's, NL
 CA A1C 1B6
 Contact: Josh Hynes
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 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.

FLUID CLEANLINESS	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>20000	▲ 49401	▲ 66116	▲ 112829
Particles >6µm	ASTM D7647	>5000	▲ 5641	▲ 10620	▲ 29557
Particles >14µm	ASTM D7647	>640	186	348	638
Particles >21µm	ASTM D7647	>160	43	76	160
Particles >38µm	ASTM D7647	>40	2	5	8
Particles >71µm	ASTM D7647	>10	1	2	4
Oil Cleanliness	ISO 4406 (c)	>21/19/16	▲ 23/20/15	▲ 23/21/16	▲ 24/22/16

FLUID DEGRADATION	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g ASTM D974*	0.20	0.23	0.26	0.20

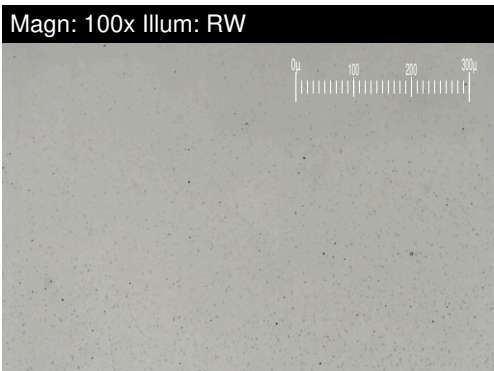
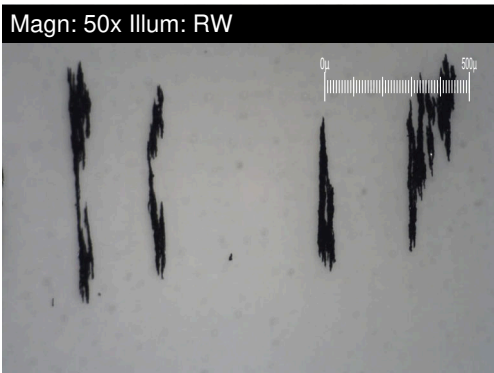
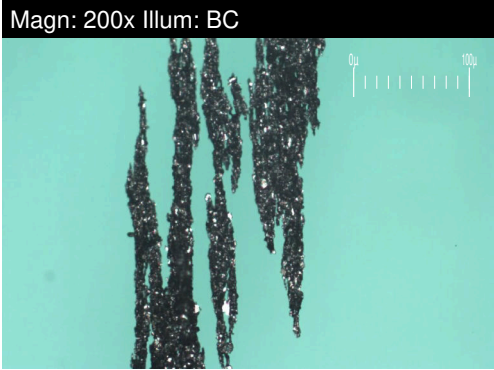
VISUAL	method	limit/base	current	history1	history2
White Metal	scalar Visual*	NONE	NONE	NONE	NONE
Yellow Metal	scalar Visual*	NONE	NONE	NONE	NONE
Precipitate	scalar Visual*	NONE	NONE	VLITE	NONE
Silt	scalar Visual*	NONE	NONE	NONE	NONE
Debris	scalar Visual*	NONE	NONE	NONE	NONE
Sand/Dirt	scalar Visual*	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	NEG	.2%
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	210	209
Visc @ 100°C	cSt ASTM D7279(m)	18.6	18.5	18.6	18.5
Viscosity Index (VI)	Scale ASTM D2270*	96	97	98	97

SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					
PrtFilter				no image	no image

FERROGRAPHY REPORT

Area
Fwd Machinery Space
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)

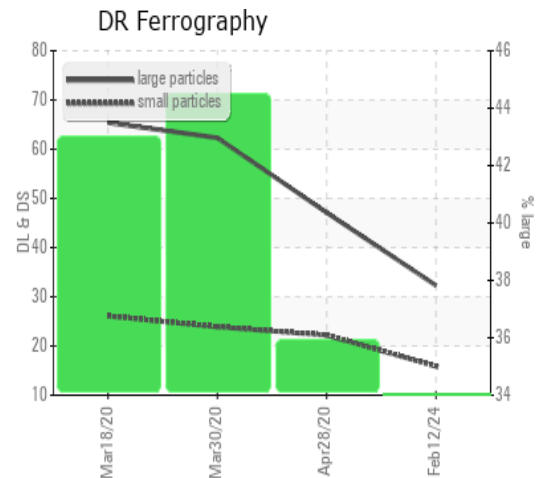


DR-FERROGRAPHY		method	limit/base	current	history1	history2
Large Particles		DR-Ferr*		32.3	---	---
Small Particles		DR-Ferr*		15.9	---	---
Total Particles		DR-Ferr*	>---	48.2	---	---
Large Particles Percentage	%	DR-Ferr*		34	---	---
Severity Index		DR-Ferr*		530	---	---

FERROGRAPHY		method	limit/base	current	history1	history2
Ferrous Rubbing	Scale 0-10	ASTM D7684*		<div style="width: 30px; height: 10px; background-color: #008000; display: inline-block;"></div> 3		
Ferrous Sliding	Scale 0-10	ASTM D7684*				
Ferrous Cutting	Scale 0-10	ASTM D7684*				
Ferrous Rolling	Scale 0-10	ASTM D7684*		<div style="width: 10px; height: 10px; background-color: #008000; display: inline-block;"></div> 1		
Ferrous Break-in	Scale 0-10	ASTM D7684*				
Ferrous Spheres	Scale 0-10	ASTM D7684*				
Ferrous Black Oxides	Scale 0-10	ASTM D7684*		<div style="width: 10px; height: 10px; background-color: #008000; display: inline-block;"></div> 1		
Ferrous Red Oxides	Scale 0-10	ASTM D7684*				
Ferrous Corrosive	Scale 0-10	ASTM D7684*		<div style="width: 10px; height: 10px; background-color: #008000; display: inline-block;"></div> 1		
Ferrous Other	Scale 0-10	ASTM D7684*				
Nonferrous Rubbing	Scale 0-10	ASTM D7684*				
Nonferrous Sliding	Scale 0-10	ASTM D7684*				
Nonferrous Cutting	Scale 0-10	ASTM D7684*				
Nonferrous Rolling	Scale 0-10	ASTM D7684*				
Nonferrous Other	Scale 0-10	ASTM D7684*				
Carbonaceous Material	Scale 0-10	ASTM D7684*				
Lubricant Degradation	Scale 0-10	ASTM D7684*				
Sand/Dirt	Scale 0-10	ASTM D7684*		<div style="width: 10px; height: 10px; background-color: #008000; display: inline-block;"></div> 1		
Fibres	Scale 0-10	ASTM D7684*				
Spheres	Scale 0-10	ASTM D7684*				
Other	Scale 0-10	ASTM D7684*		<div style="width: 10px; height: 10px; background-color: #008000; display: inline-block;"></div> 1		

WEAR

All component wear rates are normal.
The ferrography results are normal indicating no abnormal wear in the system.



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