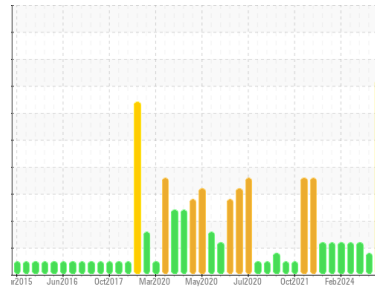


PROBLEM SUMMARY

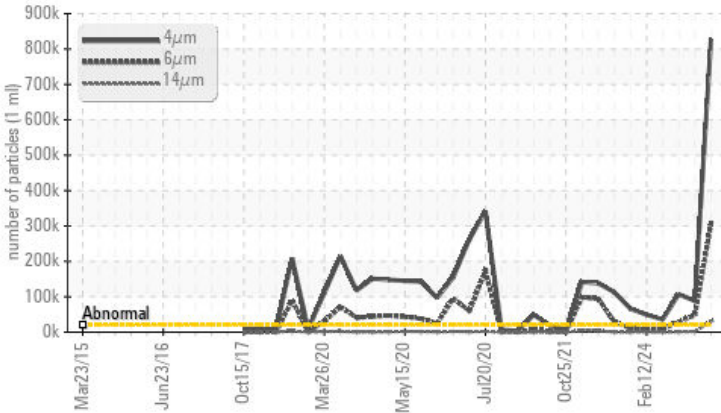
Area
Fwd Machinery Space [450341073]
 Machine Id
Pump Fire Water (Port) - Gearbox (S/N Sample Tag PA-71001A-S2)
 Component
Gearbox
 Fluid
PETRO CANADA PREMIUM R&O 220 (98 LTR)

Sample Rating Trend



COMPONENT CONDITION SUMMARY

▲ Particle Trend



RECOMMENDATION

We advise that you check all areas where contaminants can enter the system. We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. 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. Resample in 30-45 days to monitor this situation.

PROBLEMATIC TEST RESULTS

Sample Status			SEVERE	ABNORMAL	ATTENTION
Particles >14µm	ASTM D7647	>640	▲ 29606	▲ 1544	● 1211
Particles >21µm	ASTM D7647	>160	▲ 8559	115	● 264
Particles >38µm	ASTM D7647	>40	▲ 699	5	● 20
Particles >71µm	ASTM D7647	>10	▲ 44	0	● 1
Oil Cleanliness	ISO 4406 (c)	>21/19/16	▲ 27/25/22	▲ 24/23/18	● 24/22/17

Customer Id: TERHAM
 Sample No.: PC
 Lab Number: 02632069
 Test Package: MAR 2



To manage this report scan the QR code

To discuss the diagnosis or test data:
 Kevin Marson +1 (289)291-4644 x4644
Kevin.Marson@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 advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid.
Resample	---	---	?	Resample in 30-45 days to monitor this situation.
Check Breathers	---	---	?	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.
Check Dirt Access	---	---	?	We advise that you check all areas where contaminants can enter the system.
Filter Fluid	---	---	?	We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid.


HISTORICAL DIAGNOSIS

ISO




26 Mar 2024 Diag: Kevin Marson
 We recommend you service the filters on this component. We recommend an early resample to monitor this condition. All component wear rates are normal. There is a moderate amount of silt (particulates < 14 microns in size) present in the oil. 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




ISO




20 Mar 2024 Diag: Kevin Marson
 We recommend you service the filters on this component. Resample at the next service interval to monitor. All component wear rates are normal. There is a light amount of silt (particulates < 14 microns in size) present in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report




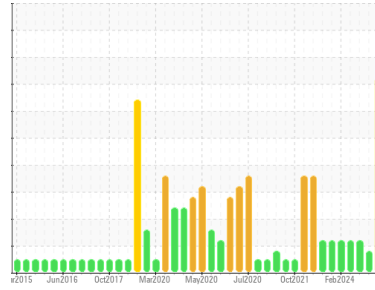
ISO



10 Mar 2024 Diag: Kevin Marson
 We recommend you service the filters on this component. Resample at the next service interval to monitor. All component wear rates are normal. There is a light amount of silt (particulates < 14 microns in size) present in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report





Area

Fwd Machinery Space [450341073]

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 advise that you check all areas where contaminants can enter the system. We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. 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. Resample in 30-45 days to monitor this situation.

Wear

All component wear rates are normal.

▲ Contamination

There is a high amount of particulates (2 to 100 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	PC0076357
Sample Date	Client Info	04 Apr 2024	26 Mar 2024	20 Mar 2024
Machine Age	hrs	Client Info	0	0
Oil Age	hrs	Client Info	0	0
Oil Changed	Client Info	N/A	N/A	N/A
Sample Status		SEVERE	ABNORMAL	ATTENTION

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	0
Iron	ppm	ASTM D5185(m)	>150	3	2
Chromium	ppm	ASTM D5185(m)	>10	0	0
Nickel	ppm	ASTM D5185(m)	>10	0	0
Titanium	ppm	ASTM D5185(m)		0	0
Silver	ppm	ASTM D5185(m)		0	0
Aluminum	ppm	ASTM D5185(m)	>5	0	0
Lead	ppm	ASTM D5185(m)	>65	0	0
Copper	ppm	ASTM D5185(m)	>80	<1	<1
Tin	ppm	ASTM D5185(m)	>8	0	0
Antimony	ppm	ASTM D5185(m)	>5	0	0
Vanadium	ppm	ASTM D5185(m)		0	0
Beryllium	ppm	ASTM D5185(m)		0	0
Cadmium	ppm	ASTM D5185(m)		0	0

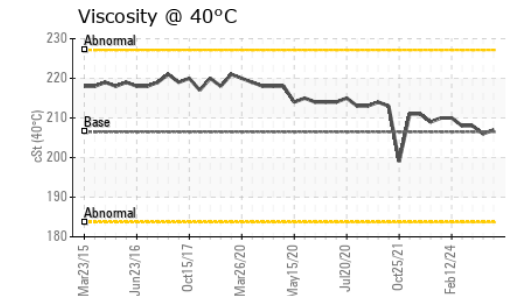
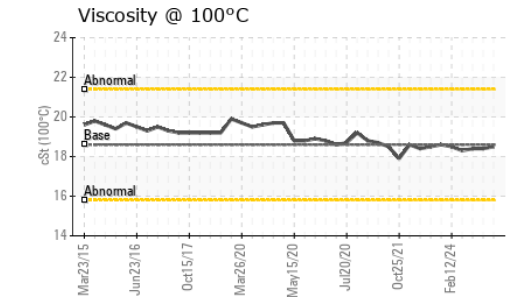
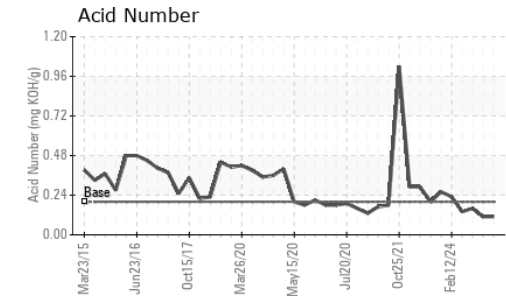
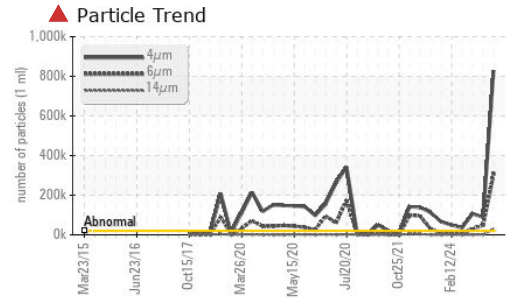
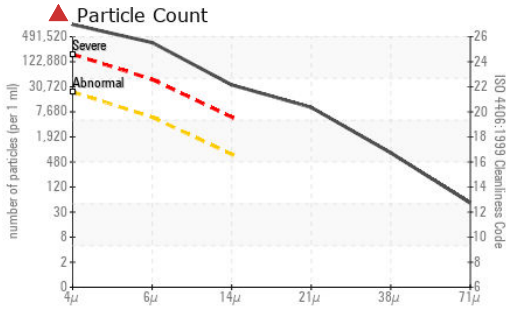
ADDITIVES method limit/base current history1 history2

Boron	ppm	ASTM D5185(m)		<1	<1
Barium	ppm	ASTM D5185(m)		0	0
Molybdenum	ppm	ASTM D5185(m)		0	0
Manganese	ppm	ASTM D5185(m)		0	0
Magnesium	ppm	ASTM D5185(m)	0	<1	0
Calcium	ppm	ASTM D5185(m)		3	3
Phosphorus	ppm	ASTM D5185(m)	0	15	14
Zinc	ppm	ASTM D5185(m)		2	2
Sulfur	ppm	ASTM D5185(m)	500	1667	1605
Lithium	ppm	ASTM D5185(m)		<1	<1

CONTAMINANTS method limit/base current history1 history2

Silicon	ppm	ASTM D5185(m)	>20	0	0
Sodium	ppm	ASTM D5185(m)		0	0
Potassium	ppm	ASTM D5185(m)	>20	<1	<1

OIL ANALYSIS REPORT



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PC
Lab Number : 02632069
Unique Number : 5773222
Test Package : MAR 2 (Additional Tests: KV100, PQ, PrtCount, VI)
Received : 29 Apr 2024
Tested : 30 Apr 2024
Diagnosed : 30 Apr 2024 - Kevin Marson

Suncor - Terra Nova Projects
 Scotia Centre, 235 Water Street
 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.

FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>20000	827761	88266	107053	
Particles >6µm	ASTM D7647	>5000	305128	48060	28979	
Particles >14µm	ASTM D7647	>640	▲ 29606	▲ 1544	● 1211	
Particles >21µm	ASTM D7647	>160	▲ 8559	115	● 264	
Particles >38µm	ASTM D7647	>40	▲ 699	5	20	
Particles >71µm	ASTM D7647	>10	▲ 44	0	1	
Oil Cleanliness	ISO 4406 (c)	>21/19/16	▲ 27/25/22	▲ 24/23/18	● 24/22/17	

FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	0.20	0.11	0.11	0.16

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	VLITE	VLITE	NONE
Sand/Dirt	scalar	Visual*	NONE	NONE	NONE	VLITE
Appearance	scalar	Visual*	NORML	NORML	NORML	NORML
Odor	scalar	Visual*	NORML	NORML	NORML	NORML
Emulsified Water	scalar	Visual*	>0.2	NEG	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	207	206	208
Visc @ 100°C	cSt	ASTM D7279(m)	18.6	18.5	18.4	18.4
Viscosity Index (VI)	Scale	ASTM D2270*	96	98	98	97

SAMPLE IMAGES		method	limit/base	current	history1	history2
Color						
Bottom						