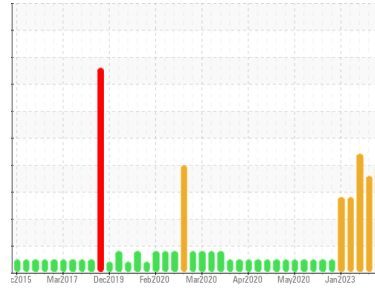


# PROBLEM SUMMARY

Sample Rating Trend



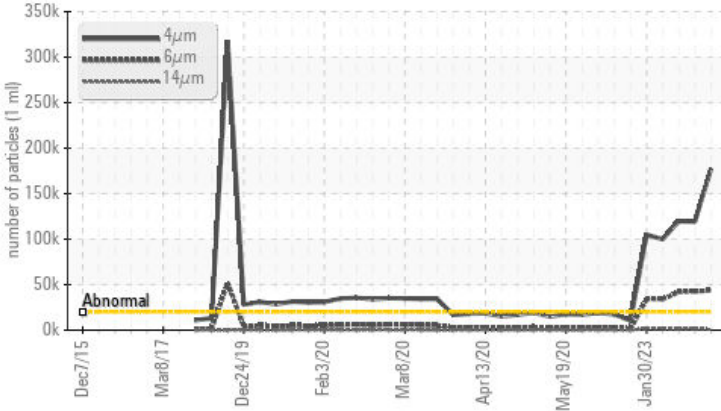
ISO



Area  
**Fwd Machinery Space [450234533]**  
Machine Id  
**Pump - Fire Water (Stbd) - Gearbox (S/N Sample Tag PA-71001B-S2)**  
Component  
**Starboard Gearbox**  
Fluid  
**PETRO CANADA PREMIUM R&O 220 (98 LTR)**

## COMPONENT CONDITION SUMMARY

Particle Trend



## RECOMMENDATION

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.

## PROBLEMATIC TEST RESULTS

Sample Status			SEVERE	SEVERE	SEVERE
Particles >4µm	ASTM D7647	>20000	🔴 177354	🟡 119221	🟡 119748
Particles >6µm	ASTM D7647	>5000	🔴 43611	🔴 42704	🔴 41927
Oil Cleanliness	ISO 4406 (c)	>21/19/16	🔴 25/23/17	🔴 24/23/17	🔴 24/23/17

Customer Id: TERHAM  
Sample No.: PC0076275  
Lab Number: 02605591  
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](mailto:Kevin.Marson@wearcheck.com)

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

## RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Change Filter	---	---	?	We recommend you service the filters on this component.
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 Seals	---	---	?	Check seals and/or filters for points of contaminant entry.

## HISTORICAL DIAGNOSIS

### 13 Oct 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. Confirm the source of the lubricant being utilized for top-up/fill. Resample in 30-45 days to monitor this situation. All component wear rates are normal. There is a high amount of silt (particulates < 14 microns in size) present in the oil. Additive levels indicate the addition of a different brand, or type of 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



### 30 Aug 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. Confirm the source of the lubricant being utilized for top-up/fill. Resample in 30-45 days to monitor this situation. All component wear rates are normal. There is a high amount of silt (particulates < 14 microns in size) present in the oil. Additive levels indicate the addition of a different brand, or type of 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



### 30 Jan 2023 Diag: Kevin Marson

ADDITIVES

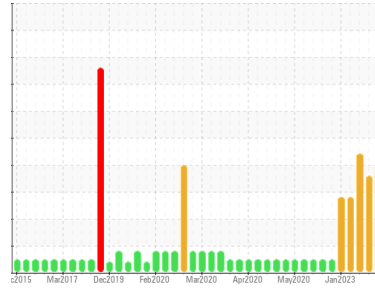


We recommend you service the filters on this component. Confirm the source of the lubricant being utilized for top-up/fill. We recommend an early resample to monitor this condition. All component wear rates are normal. Oil Cleanliness are abnormally high. Particles >14µm are abnormally high. Particles >4µm are abnormally high. Particles >6µm are abnormally high. Particles >21µm are notably high. Additive levels indicate the addition of a different brand, or type of 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



Area  
**Fwd Machinery Space [450234533]**  
 Machine Id  
**Pump - Fire Water (Stbd) - Gearbox (S/N Sample Tag PA-71001B-S2)**  
 Component  
**Starboard Gearbox**  
 Fluid  
**PETRO CANADA PREMIUM R&O 220 (98 LTR)**



**DIAGNOSIS**

**Recommendation**

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.

**Wear**

All component wear rates are normal.

**Contamination**

There is a high 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	<b>PC0076275</b>	PC	PC0061610
Sample Date	Client Info	<b>06 Dec 2023</b>	13 Oct 2023	30 Aug 2023
Machine Age	hrs	<b>0</b>	0	0
Oil Age	hrs	<b>0</b>	0	0
Oil Changed	Client Info	<b>N/A</b>	N/A	N/A
Sample Status		<b>SEVERE</b>	SEVERE	SEVERE

**CONTAMINATION**

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

**WEAR METALS**

method	limit/base	current	history1	history2
PQ	ASTM D8184*	<b>0</b>	1	0
Iron	ppm ASTM D5185(m) >150	<b>6</b>	5	5
Chromium	ppm ASTM D5185(m) >10	<b>0</b>	0	0
Nickel	ppm ASTM D5185(m) >10	<b>&lt;1</b>	0	0
Titanium	ppm ASTM D5185(m)	<b>0</b>	0	0
Silver	ppm ASTM D5185(m)	<b>0</b>	<1	0
Aluminum	ppm ASTM D5185(m) >5	<b>&lt;1</b>	<1	<1
Lead	ppm ASTM D5185(m) >65	<b>&lt;1</b>	<1	0
Copper	ppm ASTM D5185(m) >80	<b>&lt;1</b>	<1	<1
Tin	ppm ASTM D5185(m) >8	<b>0</b>	0	0
Antimony	ppm ASTM D5185(m) >5	<b>0</b>	0	0
Vanadium	ppm ASTM D5185(m)	<b>0</b>	0	0
Beryllium	ppm ASTM D5185(m)	<b>0</b>	0	0
Cadmium	ppm ASTM D5185(m)	<b>0</b>	0	0

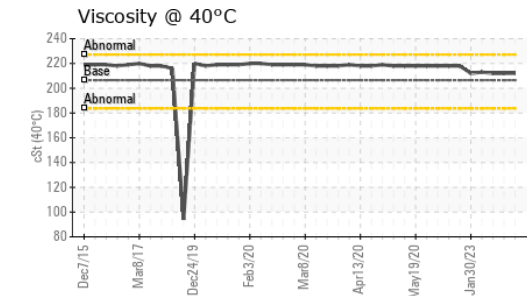
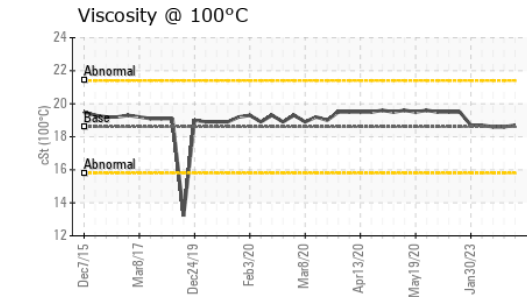
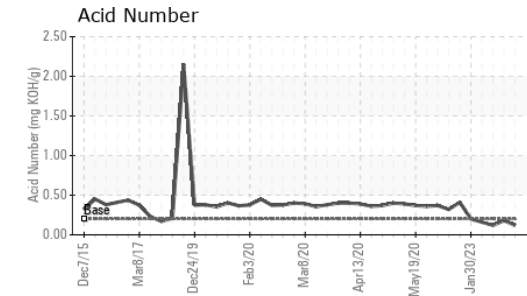
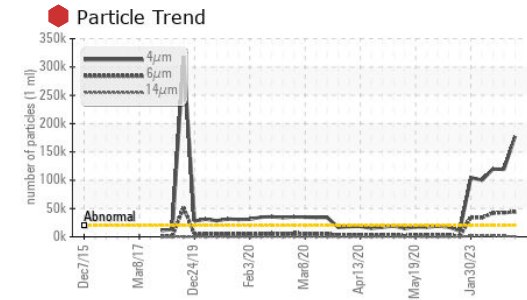
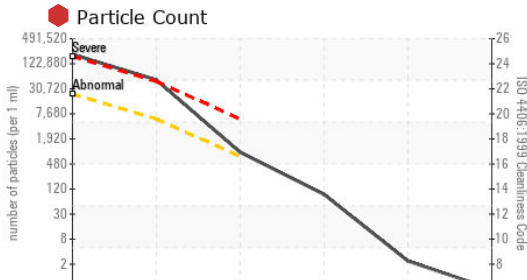
**ADDITIVES**

method	limit/base	current	history1	history2
Boron	ppm ASTM D5185(m)	<b>4</b>	4	4
Barium	ppm ASTM D5185(m)	<b>0</b>	<1	0
Molybdenum	ppm ASTM D5185(m)	<b>0</b>	0	0
Manganese	ppm ASTM D5185(m)	<b>0</b>	0	0
Magnesium	ppm ASTM D5185(m) 0	<b>&lt;1</b>	0	<1
Calcium	ppm ASTM D5185(m)	<b>7</b>	6	6
Phosphorus	ppm ASTM D5185(m) 0	<b>31</b>	31	▲ 37
Zinc	ppm ASTM D5185(m)	<b>4</b>	4	5
Sulfur	ppm ASTM D5185(m) 500	<b>3489</b>	3319	▲ 3671
Lithium	ppm ASTM D5185(m)	<b>&lt;1</b>	<1	<1

**CONTAMINANTS**

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

# OIL ANALYSIS REPORT



**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9  
**Sample No.** : PC0076275 **Received** : 28 Dec 2023  
**Lab Number** : 02605591 **Diagnosed** : 02 Jan 2024  
**Unique Number** : 5698676 **Diagnostician** : Kevin Marson  
**Test Package** : MAR 2 ( Additional Tests: KV100, PQ, PrtCount, VI )

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.

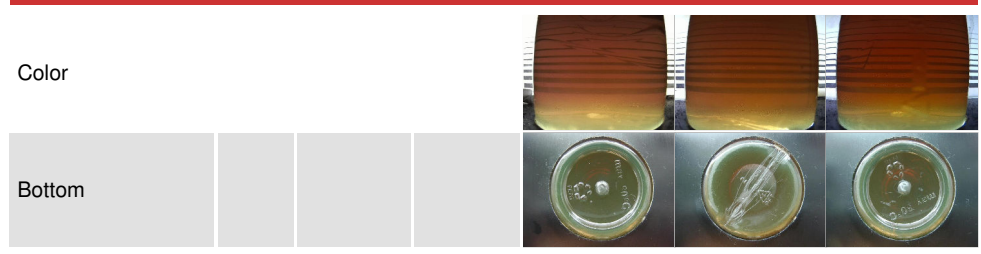
FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>20000	177354	119221	119748	
Particles >6µm	ASTM D7647	>5000	43611	42704	41927	
Particles >14µm	ASTM D7647	>640	807	1109	1272	
Particles >21µm	ASTM D7647	>160	79	143	195	
Particles >38µm	ASTM D7647	>40	2	8	7	
Particles >71µm	ASTM D7647	>10	0	5	5	
Oil Cleanliness	ISO 4406 (c)	>21/19/16	25/23/17	24/23/17	24/23/17	

FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	0.20	0.12	0.18	0.12

VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	NONE	NONE	VLITE
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	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	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	212	212	212
Visc @ 100°C	cSt	ASTM D7279(m)	18.6	18.7	18.6	18.6
Viscosity Index (VI)	Scale	ASTM D2270*	96	98	97	97

## SAMPLE IMAGES



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 St. John's, NL  
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