



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINANTS	SEVERE
OIL CONDITION	NORMAL

Machine Id  
**PH632.010.17 (S/N 3436)**  
 Component  
**Starboard Hydraulic System**  
 Fluid  
**PETRO CANADA ENDURATEX EP 150 (4500 LTR)**

**RECOMMENDATION**

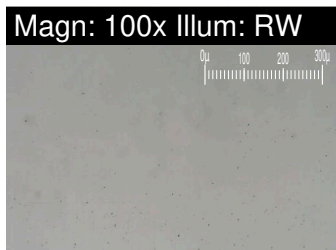
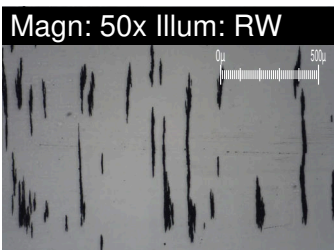
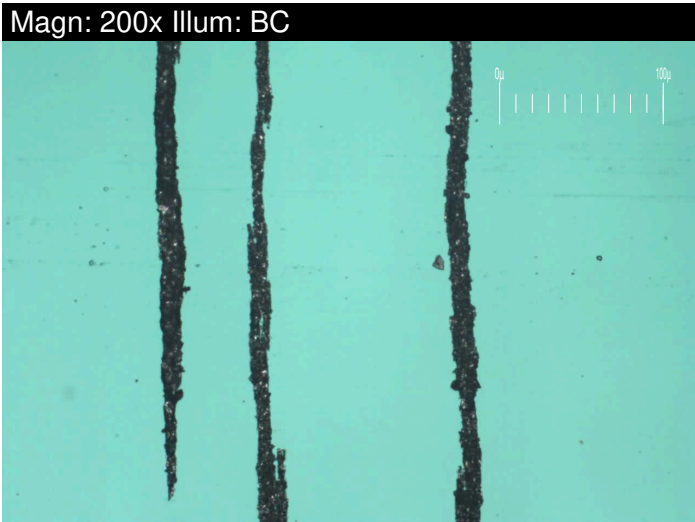
Check seals and/or filters for points of contaminant entry. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. We recommend you service the filters on this component. Resample in 30-45 days to monitor this situation.

**WEAR**

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

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>WC0873830</b>	WC0557351	WC0442974
Sample Date		Client Info		<b>09 Mar 2024</b>	29 Jul 2021	02 Mar 2021
Machine Age	hrs	Client Info		<b>89180</b>	35178	34351
Oil Age	hrs	Client Info		<b>8901</b>	4897	0
Filter Age	hrs	Client Info		<b>643</b>	188	0
Oil Changed		Client Info		<b>N/A</b>	Changed	Not Changd
Filter Changed		Client Info		<b>N/A</b>	Changed	Changed
Sample Status				<b>SEVERE</b>	ABNORMAL	NORMAL

PQ		ASTM D8184*		<b>0</b>	---	---
Iron	ppm	ASTM D5185(m)	>20	<b>6</b>	5	6
Chromium	ppm	ASTM D5185(m)	>10	<b>0</b>	0	0
Nickel	ppm	ASTM D5185(m)	>10	<b>0</b>	<1	<1
Titanium	ppm	ASTM D5185(m)		<b>0</b>	0	0
Silver	ppm	ASTM D5185(m)		<b>0</b>	0	<1
Aluminum	ppm	ASTM D5185(m)	>10	<b>0</b>	<1	<1
Lead	ppm	ASTM D5185(m)	>20	<b>3</b>	3	3
Copper	ppm	ASTM D5185(m)	>20	<b>33</b>	25	25
Tin	ppm	ASTM D5185(m)	>10	<b>3</b>	3	3
Vanadium	ppm	ASTM D5185(m)		<b>0</b>	0	0
White Metal	scalar	Visual*	NONE	<b>NONE</b>	▲ VLITE	NONE
Yellow Metal	scalar	Visual*	NONE	<b>NONE</b>	NONE	NONE
Large Particles		DR-Ferr*		<b>45.3</b>	---	---
Small Particles		DR-Ferr*		<b>15.8</b>	---	---
Total Particles		DR-Ferr*	>---	<b>61.1</b>	---	---
Large Particles Percentage	%	DR-Ferr*		<b>48.3</b>	---	---
Severity Index		DR-Ferr*		<b>1336</b>	---	---
Ferrous Rubbing	Scale 0-10	ASTM D7684*		<b>4</b>		
Ferrous Sliding	Scale 0-10	ASTM D7684*				
Ferrous Cutting	Scale 0-10	ASTM D7684*				
Ferrous Rolling	Scale 0-10	ASTM D7684*		<b>2</b>		
Ferrous Break-in	Scale 0-10	ASTM D7684*				
Ferrous Spheres	Scale 0-10	ASTM D7684*				
Ferrous Black Oxides	Scale 0-10	ASTM D7684*				
Ferrous Red Oxides	Scale 0-10	ASTM D7684*				
Ferrous Corrosive	Scale 0-10	ASTM D7684*				
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*				



## CONTAMINANTS

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

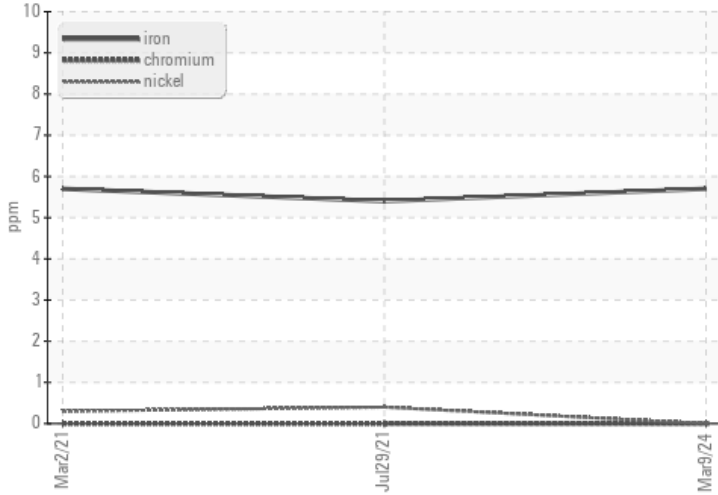
Silicon	ppm	ASTM D5185(m)	>15	<b>1</b>	3	4
Potassium	ppm	ASTM D5185(m)	>20	<b>&lt;1</b>	<1	0
Water		WC Method	>0.05	<b>NEG</b>	NEG	NEG
Particles >4µm		ASTM D7647	>5000	<b>▲ 80205</b>	---	---
Particles >6µm		ASTM D7647	>1300	<b>▲ 9674</b>	---	---
Particles >14µm		ASTM D7647	>160	<b>● 298</b>	---	---
Particles >21µm		ASTM D7647	>40	<b>● 71</b>	---	---
Particles >38µm		ASTM D7647	>10	<b>5</b>	---	---
Particles >71µm		ASTM D7647	>3	<b>0</b>	---	---
Oil Cleanliness		ISO 4406 (c)	>19/17/14	<b>▲ 24/20/15</b>	---	---
Silt	scalar	Visual*	NONE	<b>NONE</b>	NONE	NONE
Debris	scalar	Visual*	NONE	<b>NONE</b>	VLITE	NONE
Sand/Dirt	scalar	Visual*	NONE	<b>NONE</b>	NONE	NONE
Appearance	scalar	Visual*	NORML	<b>NORML</b>	NORML	NORML
Odor	scalar	Visual*	NORML	<b>NORML</b>	NORML	NORML
Emulsified Water	scalar	Visual*	>0.05	<b>NEG</b>	NEG	NEG
Carbonaceous Material	Scale 0-10	ASTM D7684*				
Sand/Dirt	Scale 0-10	ASTM D7684*		<b>1</b>		
Fibres	Scale 0-10	ASTM D7684*				
Spheres	Scale 0-10	ASTM D7684*				
Other	Scale 0-10	ASTM D7684*		<b>1</b>		

## OIL CONDITION

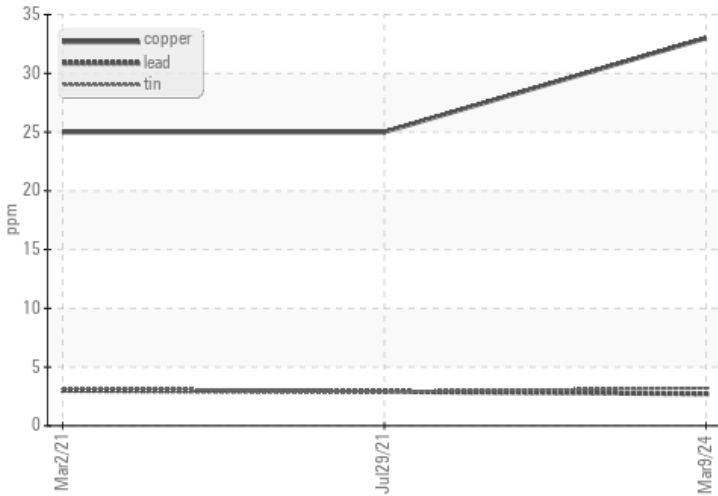
The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

Sodium	ppm	ASTM D5185(m)		<b>12</b>	7	7
Boron	ppm	ASTM D5185(m)	55	<b>41</b>	● 50	54
Barium	ppm	ASTM D5185(m)	0	<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185(m)	0	<b>0</b>	0	0
Manganese	ppm	ASTM D5185(m)	0	<b>0</b>	0	<1
Magnesium	ppm	ASTM D5185(m)	2	<b>2</b>	1	<1
Calcium	ppm	ASTM D5185(m)	6	<b>13</b>	● 11	10
Phosphorus	ppm	ASTM D5185(m)	250	<b>227</b>	245	230
Zinc	ppm	ASTM D5185(m)	3	<b>9</b>	9	6
Sulfur	ppm	ASTM D5185(m)	7500	<b>7042</b>	● 7727	8008
Acid Number (AN)	mg KOH/g	ASTM D974*	0.5	<b>0.37</b>	---	---
Visc @ 40°C	cSt	ASTM D7279(m)	150.0	<b>146</b>	148	148
Lubricant Degradation	Scale 0-10	ASTM D7684*				

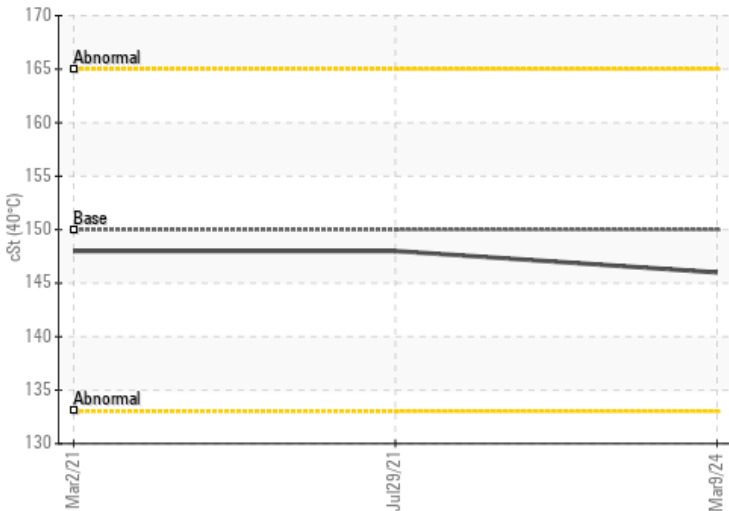
### Ferrous Alloys



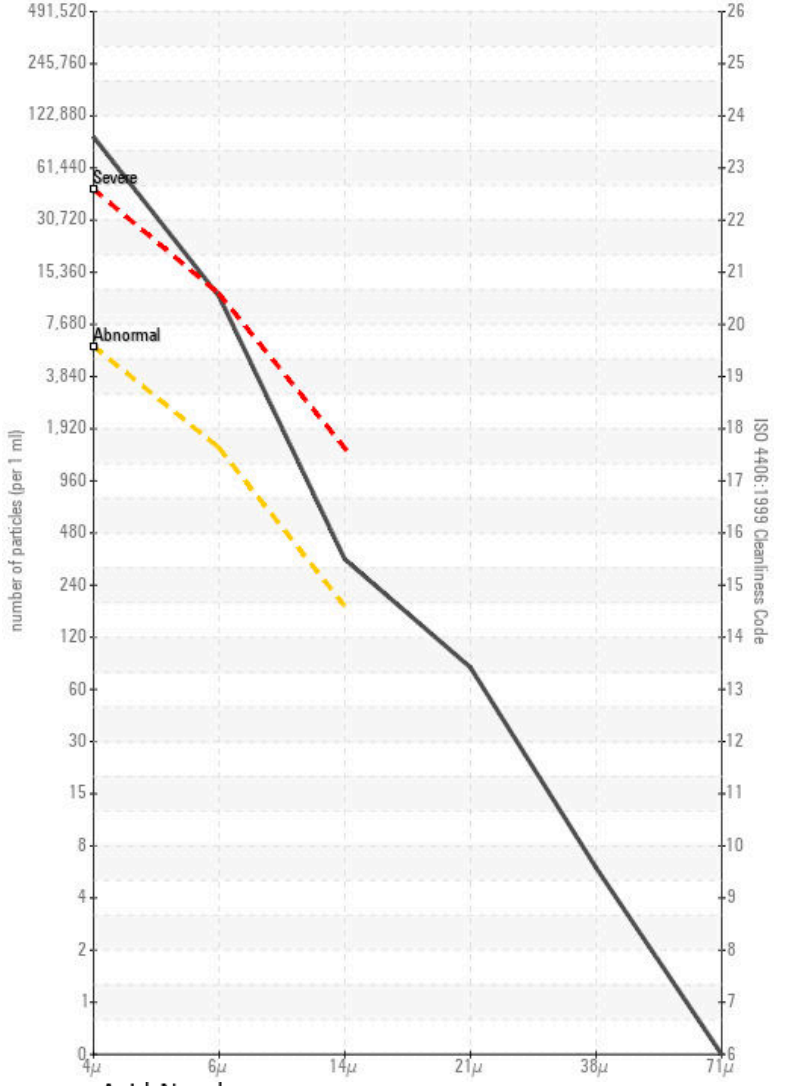
### Non-ferrous Metals



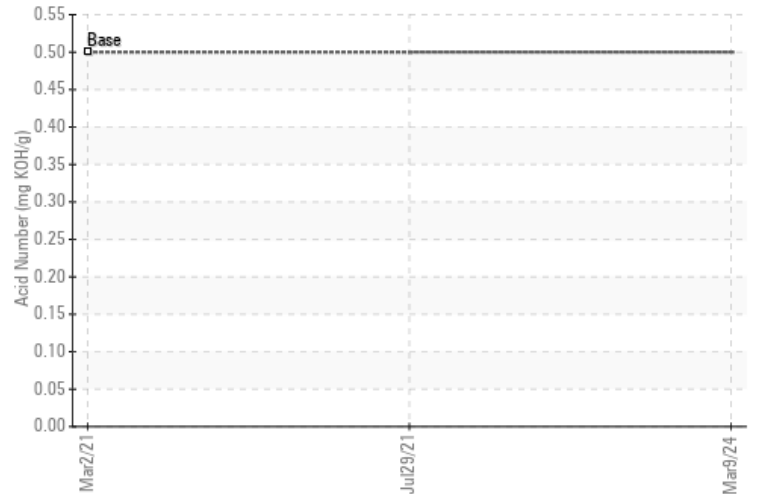
### Viscosity @ 40°C



### Particle Count



### Acid Number



**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9  
**Sample No.** : WC0873830  
**Lab Number** : 02626978  
**Unique Number** : 5760110  
**Test Package** : MAR 3

**CANSHIP UGLAND LTD.**  
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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.

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