

Area

**Water Injection**

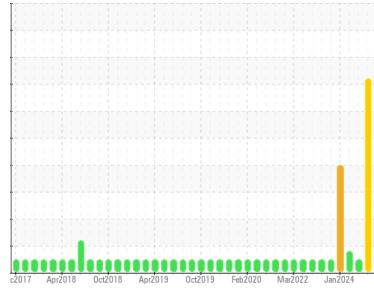
Machine Id  
**Pump Sea Water Injection (A) - Lube System (S/N Sample Tag PA-29002A-S1)**

Component

**Pump**

Fluid

**PETRO CANADA TURBOFLO 46 (1264 LTR)**



**DIAGNOSIS**

**Recommendation**

We advise that you check for the source of water entry. 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 advise that you follow the water drain-off procedure for this component. 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. Free water present. The system cleanliness is above the acceptable limit for the target ISO 4406 cleanliness code.

**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>PC</b>	PC	PC
Sample Date	Client Info	<b>09 Apr 2024</b>	23 Mar 2024	20 Feb 2024
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>ABNORMAL</b>	SEVERE	NORMAL

**CONTAMINATION**

method	limit/base	current	history1	history2
Water	WC Method >.1	<b>NEG</b>	NEG	NEG

**WEAR METALS**

method	limit/base	current	history1	history2
PQ	ASTM D8184*	<b>0</b>	0	0
Iron	ppm ASTM D5185(m) >75	<b>0</b>	0	0
Chromium	ppm ASTM D5185(m) >5	<b>0</b>	0	0
Nickel	ppm ASTM D5185(m)	<b>0</b>	0	<1
Titanium	ppm ASTM D5185(m)	<b>0</b>	0	0
Silver	ppm ASTM D5185(m)	<b>0</b>	0	0
Aluminum	ppm ASTM D5185(m) >5	<b>0</b>	0	<1
Lead	ppm ASTM D5185(m) >10	<b>0</b>	0	<1
Copper	ppm ASTM D5185(m) >15	<b>&lt;1</b>	<1	<1
Tin	ppm ASTM D5185(m)	<b>0</b>	0	0
Antimony	ppm ASTM D5185(m)	<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

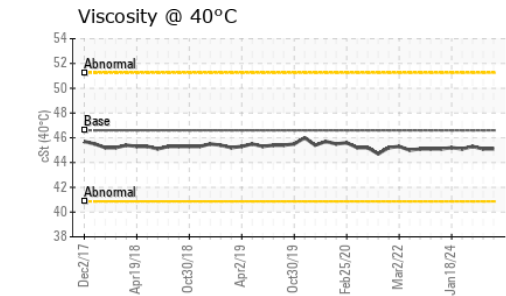
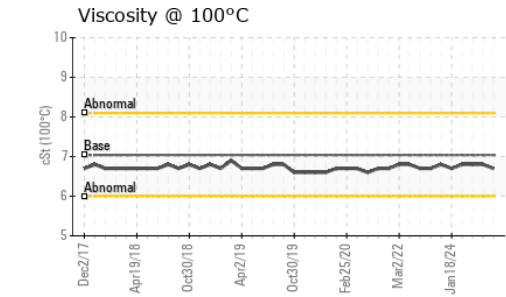
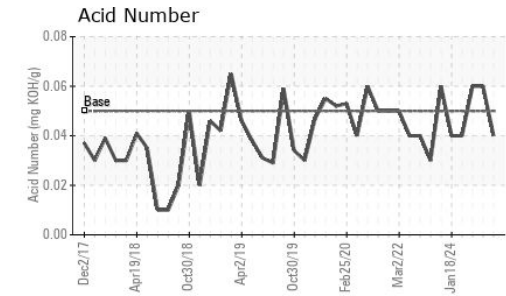
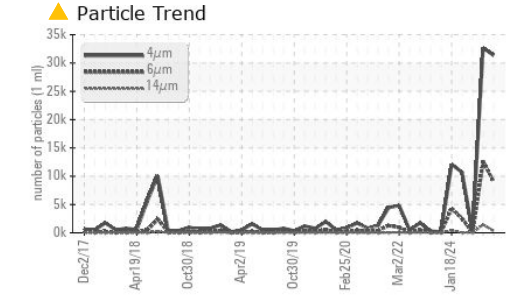
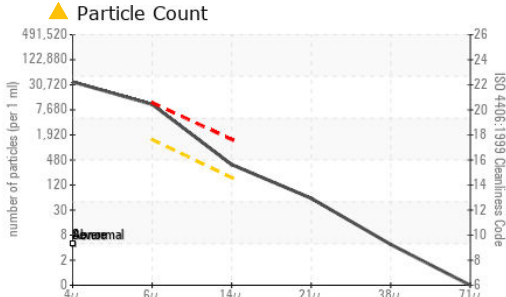
**ADDITIVES**

method	limit/base	current	history1	history2
Boron	ppm ASTM D5185(m) 0	<b>&lt;1</b>	<1	0
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	0
Magnesium	ppm ASTM D5185(m) 0	<b>&lt;1</b>	0	0
Calcium	ppm ASTM D5185(m) 0	<b>0</b>	0	0
Phosphorus	ppm ASTM D5185(m) 110	<b>151</b>	147	153
Zinc	ppm ASTM D5185(m) 0.0	<b>1</b>	<1	<1
Sulfur	ppm ASTM D5185(m)	<b>257</b>	184	188
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>	1	2
Sodium	ppm ASTM D5185(m)	<b>0</b>	0	0
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.** : PC  
**Lab Number** : 02631669  
**Unique Number** : 5772822  
**Test Package** : MAR 2 ( Additional Tests: KV100, PQ, TAN Man, VI )  
**Received** : 26 Apr 2024  
**Tested** : 29 Apr 2024  
**Diagnosed** : 29 Apr 2024 - Kevin Marson

**Suncor - Terra Nova Projects**  
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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.

FLUID CLEANLINESS	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647		<b>31360</b>	32667	190
Particles >6µm	ASTM D7647	>1300	<b>9043</b>	12584	53
Particles >14µm	ASTM D7647	>160	<b>327</b>	1447	6
Particles >21µm	ASTM D7647	>40	<b>51</b>	418	2
Particles >38µm	ASTM D7647	>10	<b>4</b>	41	1
Particles >71µm	ASTM D7647	>3	<b>0</b>	3	1
Oil Cleanliness	ISO 4406 (c)	>--/17/14	<b>22/20/16</b>	22/21/18	15/13/10

FLUID DEGRADATION	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g ASTM D974*	0.05	<b>0.04</b>	0.06	0.06

VISUAL	method	limit/base	current	history1	history2
White Metal	scalar Visual*	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar Visual*	NONE	<b>NONE</b>	NONE	NONE
Precipitate	scalar Visual*	NONE	<b>VLITE</b>	NONE	NONE
Silt	scalar Visual*	NONE	<b>NONE</b>	NONE	NONE
Debris	scalar Visual*	NONE	<b>NONE</b>	NONE	NONE
Sand/Dirt	scalar Visual*	NONE	<b>VLITE</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*	>.1	<b>.5%</b>	NEG	NEG
Free Water	scalar Visual*		<b>1%</b>	NEG	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt ASTM D7279(m)	46.6	<b>45.1</b>	45.1	45.3
Visc @ 100°C	cSt ASTM D7279(m)	7.04	<b>6.7</b>	6.8	6.8
Viscosity Index (VI)	Scale ASTM D2270*	107	<b>100</b>	104	104

SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					