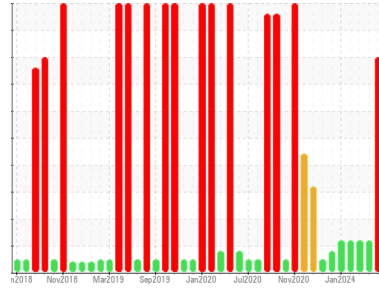


# PROBLEM SUMMARY

Sample Rating Trend

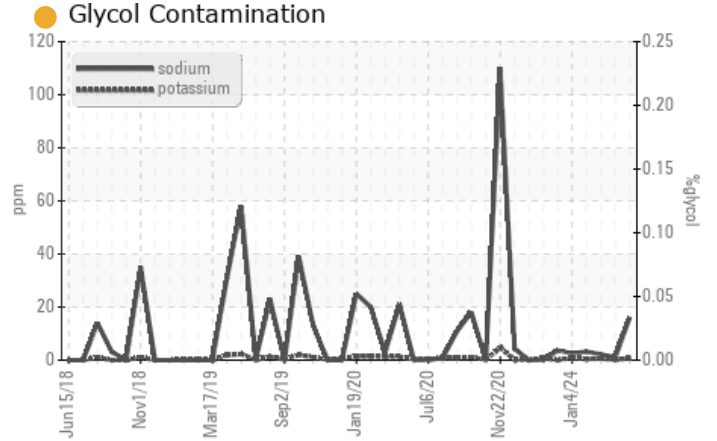
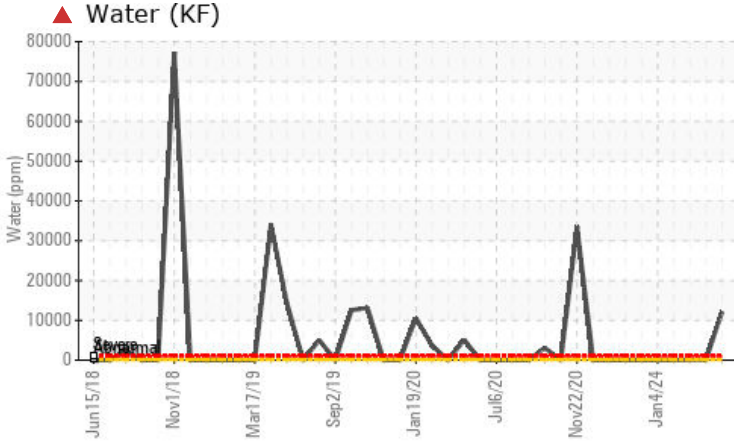


**WATER**



Area  
**Aft Machinery Space [450296544]**  
 Machine Id  
**Thruster Aft Port - Seal Oil System (S/N Sample Tag CL-06002-S3)**  
 Component  
**Sealing System**  
 Fluid  
**PETRO CANADA ENERGOL GR-XP ISO 150 (65 LTR)**

## COMPONENT CONDITION SUMMARY



## RECOMMENDATION

We advise that you check for the source of water entry. Check seals and/or filters for points of contaminant entry. We recommend that you change the oil. We recommend an early resample to monitor this condition. NOTE: Test values may be askew due high concentration of free water present in sample.

## PROBLEMATIC TEST RESULTS

Sample Status				SEVERE	ATTENTION	ABNORMAL
Water	%	ASTM D6304*		▲ <b>1.209</b>	---	0.003
ppm Water	ppm	ASTM D6304*		▲ <b>12096</b>	---	33
Precipitate	scalar	Visual*	NONE	▲ <b>HEAVY</b>	NONE	NONE
Appearance	scalar	Visual*	NORML	▲ <b>HAZY</b>	NORML	NORML
Emulsified Water	scalar	Visual*		▲ <b>.5%</b>	NEG	.2%
Free Water	scalar	Visual*		▲ <b>5%</b>	NEG	NEG

Customer Id: TERHAM  
 Sample No.: PC0081643  
 Lab Number: 02631778  
 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 Fluid	---	---	?	We recommend that you change the oil.
Resample	---	---	?	We recommend an early resample to monitor this condition.
Alert	---	---	?	NOTE: Test values may be askew due high concentration of free water present in sample.
Check Water Access	---	---	?	We advise that you check for the source of water entry.
Check Seals	---	---	?	Check seals and/or filters for points of contaminant entry.


## HISTORICAL DIAGNOSIS

ISO




**30 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 fluid. The AN level is acceptable for this fluid. The condition of the fluid is suitable for further service.

view report




ISO




**26 Feb 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 fluid. The water content is negligible. The AN level is acceptable for this fluid. The fluid is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

view report




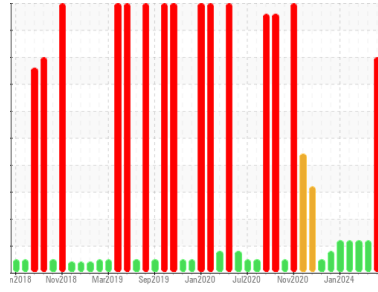
ISO



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

view report





Area  
**Aft Machinery Space [450296544]**  
Machine ID  
**Thruster Aft Port - Seal Oil System (S/N Sample Tag CL-06002-S3)**  
Component  
**Sealing System**  
Fluid  
**PETRO CANADA ENERGOL GR-XP ISO 150 (65 LTR)**

**DIAGNOSIS**

**▲ Recommendation**

We advise that you check for the source of water entry. Check seals and/or filters for points of contaminant entry. We recommend that you change the oil. We recommend an early resample to monitor this condition. NOTE: Test values may be askew due high concentration of free water present in sample.

**Wear**

All component wear rates are normal.

**▲ Contamination**

There is a high concentration of water present in the fluid. Excessive free water present. Abnormal water content and sodium(Na) level indicate possible sea water contamination.

**▲ Fluid Condition**

The white residue present in the sample is fluid additive precipitate. The AN level is acceptable for this fluid. The fluid is no longer serviceable due to the presence of contaminants.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number	Client Info			<b>PC0081643</b>	PC	PC
Sample Date	Client Info			<b>31 Mar 2024</b>	30 Mar 2024	26 Feb 2024
Machine Age	hrs	Client Info		<b>0</b>	0	0
Oil Age	hrs	Client Info		<b>0</b>	0	0
Oil Changed	Client Info			<b>N/A</b>	N/A	N/A
Sample Status				<b>SEVERE</b>	ATTENTION	ABNORMAL

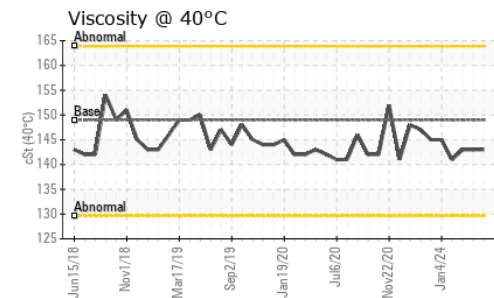
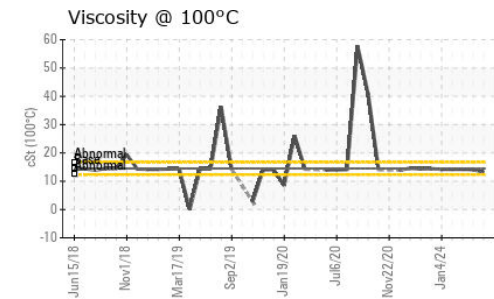
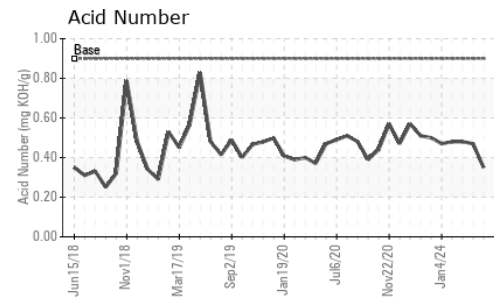
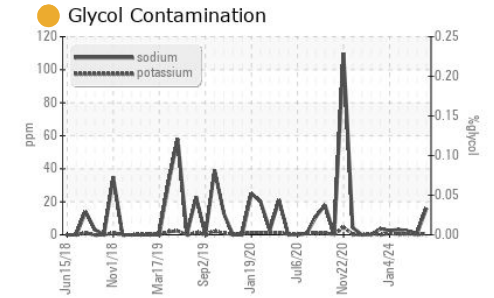
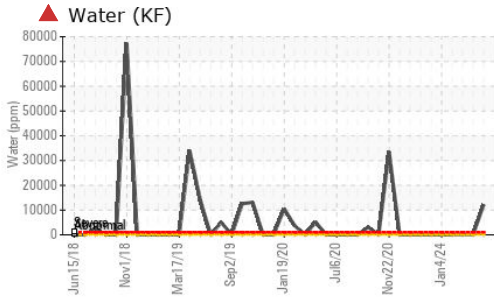
WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184*		<b>0</b>	0	0
Iron	ppm	ASTM D5185(m)	>100	<b>8</b>	6	7
Chromium	ppm	ASTM D5185(m)	>3	<b>&lt;1</b>	0	0
Nickel	ppm	ASTM D5185(m)	>8	<b>&lt;1</b>	0	<1
Titanium	ppm	ASTM D5185(m)		<b>0</b>	0	0
Silver	ppm	ASTM D5185(m)		<b>0</b>	0	0
Aluminum	ppm	ASTM D5185(m)	>3	<b>0</b>	0	<1
Lead	ppm	ASTM D5185(m)		<b>0</b>	0	0
Copper	ppm	ASTM D5185(m)	>3	<b>&lt;1</b>	0	0
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)		<b>1</b>	11	13
Barium	ppm	ASTM D5185(m)		<b>0</b>	0	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)		<b>3</b>	<1	0
Calcium	ppm	ASTM D5185(m)		<b>2</b>	<1	4
Phosphorus	ppm	ASTM D5185(m)		<b>128</b>	166	172
Zinc	ppm	ASTM D5185(m)		<b>6</b>	5	6
Sulfur	ppm	ASTM D5185(m)		<b>7787</b>	7969	8580
Lithium	ppm	ASTM D5185(m)		<b>&lt;1</b>	<1	<1

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>25	<b>2</b>	1	3
Sodium	ppm	ASTM D5185(m)		<b>16</b>	1	2
Potassium	ppm	ASTM D5185(m)	>20	<b>&lt;1</b>	<1	<1
Water	%	ASTM D6304*		<b>▲ 1.209</b>	---	0.003
ppm Water	ppm	ASTM D6304*		<b>▲ 12096</b>	---	33

FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>5000	---	● 9280	▲ 17970
Particles >6µm		ASTM D7647	>1300	---	● 1818	▲ 3168
Particles >14µm		ASTM D7647	>160	---	58	85
Particles >21µm		ASTM D7647	>40	---	14	16
Particles >38µm		ASTM D7647	>10	---	2	4
Particles >71µm		ASTM D7647	>3	---	1	2
Oil Cleanliness		ISO 4406 (c)	>19/17/14	---	● 20/18/13	▲ 21/19/14

# OIL ANALYSIS REPORT



FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	0.9	<b>0.35</b>	0.47	0.48

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>HEAVY</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>NONE</b>	NONE	NONE
Appearance	scalar	Visual*	NORML	<b>HAZY</b>	NORML	NORML
Odor	scalar	Visual*	NORML	<b>NORML</b>	NORML	NORML
Emulsified Water	scalar	Visual*		<b>.5%</b>	NEG	.2%
Free Water	scalar	Visual*		<b>5%</b>	NEG	NEG

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	149	<b>143</b>	143	143
Visc @ 100°C	cSt	ASTM D7279(m)	14.5	<b>13.2</b>	14.1	14.2
Viscosity Index (VI)	Scale	ASTM D2270*		<b>83</b>	95	96

SAMPLE IMAGES		method	limit/base	current	history1	history2
Color						
Bottom						



**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9  
**Sample No.** : PC0081643  
**Lab Number** : **02631778**  
**Unique Number** : 5772931  
**Test Package** : MAR 2 ( Additional Tests: Bottom, KF, KV100, PQ, PrtCount, TAN Man, VI )

**Suncor - Terra Nova Projects**  
 Scotia Centre, 235 Water Strret  
 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.*