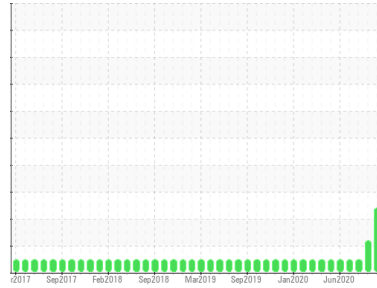


PROBLEM SUMMARY

Area
Fwd Machinery Space [450222454]
 Machine Id
Thruster Fwd Fore - Lubrication System (S/N Sample Tag CL-06005-S1)
 Component
Lube System
 Fluid
PETRO CANADA ENERGOL GR-XP ISO 150 (5000 LTR)

Sample Rating Trend



WATER



COMPONENT CONDITION SUMMARY

No relevant graphs to display

RECOMMENDATION

We advise that you check for the source of water entry. Check seals and/or filters for points of contaminant entry. We advise that you follow the water drain-off procedure for this component. We recommend an early resample to monitor this condition. NOTE: Test values may be askew due high concentration of free water present in sample. Please contact your representative for information regarding the proper sampling kits for your service. NOTE: We recommend using MAR 3 test kits, this testkit includes Analytical Ferrography which provides a detailed morphological analysis of wear particles present in the fluid.

PROBLEMATIC TEST RESULTS

Sample Status				ABNORMAL	ATTENTION	NORMAL
Appearance	scalar	Visual*	NORML	▲ WGOIL	NORML	NORML
Free Water	scalar	Visual*		▲ 1%	NEG	NEG

Customer Id: TERHAM
Sample No.: PC0076463
Lab Number: 02599119
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
Water Drain-off	---	---	?	We advise that you follow the water drain-off procedure for this component.
Resample	---	---	?	We recommend an early resample to monitor this condition.
Contact Required	---	---	?	Please contact your representative for information regarding the proper sampling kits for your service.
Alert	---	---	?	NOTE: We recommend using MAR 3 test kits, 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

14 Sep 2023 Diag: Bill Quesnel

ISO



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



05 Feb 2023 Diag: Kevin Marson

NORMAL



Resample at the next service interval to monitor. Please contact your representative for information regarding the proper sampling kits for your service. NOTE: We recommend using MAR 3 test kits, this testkit includes Analytical Ferrography which provides a detailed morphological analysis of wear particles present in the fluid. Component wear rates appear to be normal (unconfirmed). The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report



06 Jul 2020 Diag: Kevin Marson

NORMAL

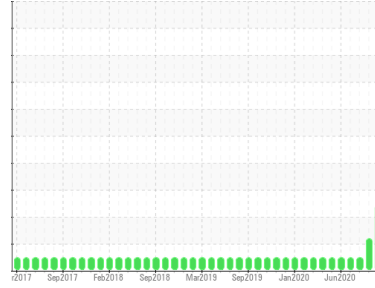


Resample at the next service interval to monitor. Please contact your representative for information regarding the proper sampling kits for your service. NOTE: We recommend using Advanced Oil Monitoring (AOM) kits for this system. The AOM test package includes advanced level testing to determine the suitability of turbine and large industrial compressor oils for continued use. Component wear rates appear to be normal (unconfirmed). The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable. The AN level is acceptable for this fluid. The condition of the oil is acceptable for the time in service (unconfirmed).

view report



Area
Fwd Machinery Space [450222454]
Machine Id
Thruster Fwd Fore - Lubrication System (S/N Sample Tag CL-06005-S1)
Component
Lube System
Fluid
PETRO CANADA ENERGOL GR-XP ISO 150 (5000 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 advise that you follow the water drain-off procedure for this component. We recommend an early resample to monitor this condition. NOTE: Test values may be askew due high concentration of free water present in sample. Please contact your representative for information regarding the proper sampling kits for your service. NOTE: We recommend using MAR 3 test kits, this testkit includes Analytical Ferrography which provides a detailed morphological analysis of wear particles present in the fluid.

Wear

Component wear rates appear to be normal (unconfirmed).

Contamination

Free water present. The system cleanliness is acceptable for your target ISO 4406 cleanliness code.

Fluid Condition

The AN level is acceptable for this fluid.

SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	PC0076463	PC	PC
Sample Date	Client Info	09 Nov 2023	14 Sep 2023	05 Feb 2023
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		ABNORMAL	ATTENTION	NORMAL

WEAR METALS

method	limit/base	current	history1	history2
PQ	ASTM D8184*	0	0	0
Iron	ppm	ASTM D5185(m) >20	<1	<1
Chromium	ppm	ASTM D5185(m) >10	0	0
Nickel	ppm	ASTM D5185(m) >10	<1	0
Titanium	ppm	ASTM D5185(m)	0	0
Silver	ppm	ASTM D5185(m)	<1	<1
Aluminum	ppm	ASTM D5185(m) >10	0	0
Lead	ppm	ASTM D5185(m) >20	0	0
Copper	ppm	ASTM D5185(m) >20	<1	<1
Tin	ppm	ASTM D5185(m) >10	0	0
Antimony	ppm	ASTM D5185(m)	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)	10	6
Barium	ppm	ASTM D5185(m)	<1	<1
Molybdenum	ppm	ASTM D5185(m)	0	0
Manganese	ppm	ASTM D5185(m)	0	0
Magnesium	ppm	ASTM D5185(m)	<1	1
Calcium	ppm	ASTM D5185(m)	4	4
Phosphorus	ppm	ASTM D5185(m)	177	175
Zinc	ppm	ASTM D5185(m)	4	6
Sulfur	ppm	ASTM D5185(m)	11280	11471
Lithium	ppm	ASTM D5185(m)	<1	<1

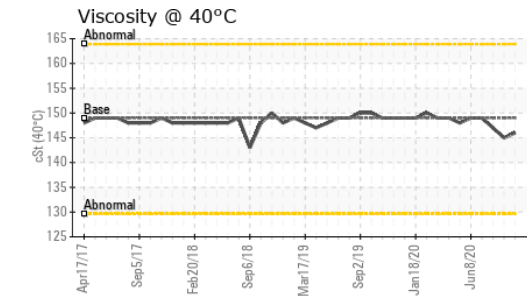
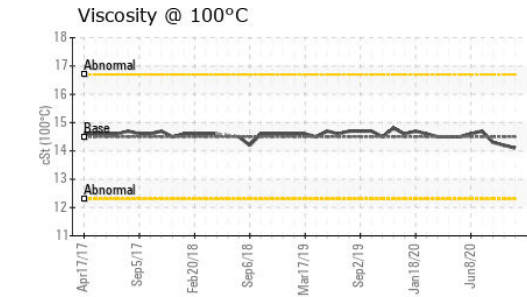
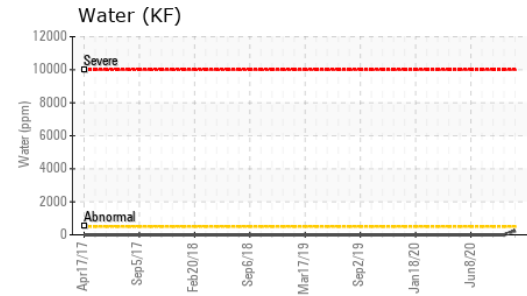
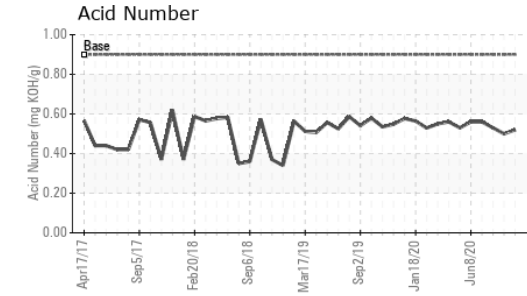
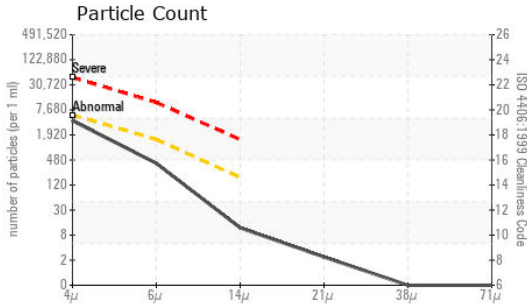
CONTAMINANTS

method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m) >15	<1	1
Sodium	ppm	ASTM D5185(m)	1	<1
Potassium	ppm	ASTM D5185(m) >20	0	0
Water	%	ASTM D6304* >0.05	0.025	---
ppm Water	ppm	ASTM D6304* >500	252	---

FLUID CLEANLINESS

method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>5000	3674	▲ 7094
Particles >6µm	ASTM D7647	>1300	352	▲ 1454
Particles >14µm	ASTM D7647	>160	10	26
Particles >21µm	ASTM D7647	>40	2	4
Particles >38µm	ASTM D7647	>10	0	1
Particles >71µm	ASTM D7647	>3	0	1
Oil Cleanliness	ISO 4406 (c)	>19/17/14	19/16/10	▲ 20/18/12

OIL ANALYSIS REPORT



FLUID DEGRADATION

method	limit/base	current	history1	history2	
Acid Number (AN) mg KOH/g	ASTM D974*	0.9	0.52	0.50	0.53

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	NONE	NONE	NONE
Sand/Dirt	scalar Visual*	NONE	NONE	NONE	NONE
Appearance	scalar Visual*	NORML	▲ WGOIL	NORML	NORML
Odor	scalar Visual*	NORML	NORML	NORML	NORML
Emulsified Water	scalar Visual*	>0.05	NEG	NEG	NEG
Free Water	scalar Visual*		▲ 1%	NEG	NEG

FLUID PROPERTIES

method	limit/base	current	history1	history2	
Visc @ 40°C	cSt ASTM D7279(m)	149	146	145	147
Visc @ 100°C	cSt ASTM D7279(m)	14.5	14.1	14.2	14.3
Viscosity Index (VI)	Scale ASTM D2270*		92	94	94

SAMPLE IMAGES



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PC0076463
Lab Number : **02599119**
Unique Number : 5684199
Test Package : MAR 2 (Additional Tests: KF, KV100, PQ, 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.