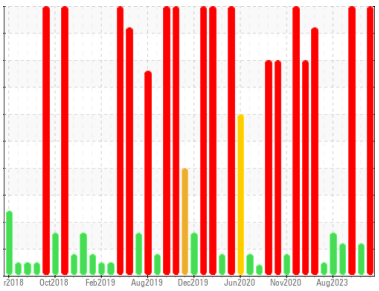
PROBLEM SUMMARY

Sample Rating Trend

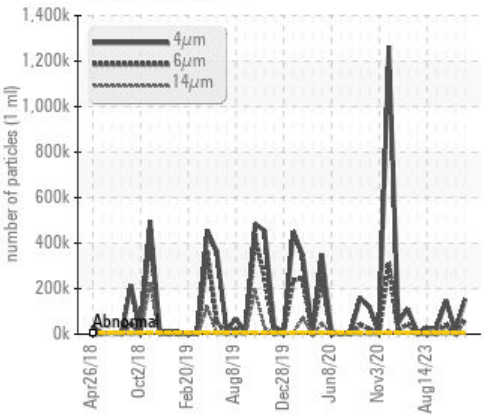


ISO

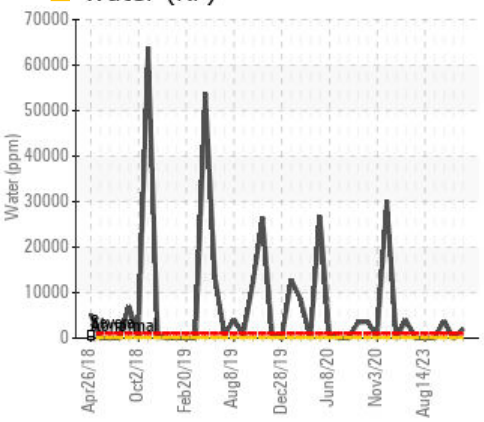
Area
Aft Machinery Space [450270725]
Machine Id
Thruster Aft Starboard - Seal Oil System (S/N Sample Tag CL-06003-S3)
Component
Sealing System
Fluid
PETRO CANADA ENERGOL GR-XP ISO 150 (65 LTR)

COMPONENT CONDITION SUMMARY

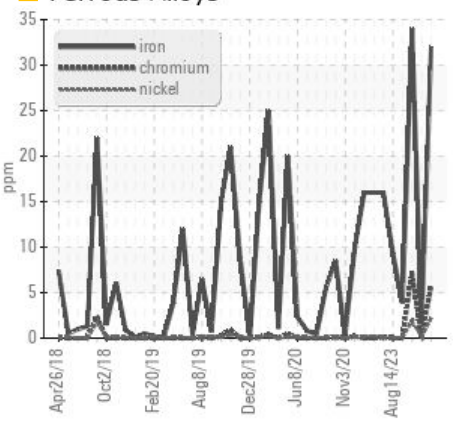
▲ Particle Trend



▲ Water (KF)



▲ Ferrous Alloys



RECOMMENDATION

Check seals and/or filters for points of contaminant entry. We advise that you check all areas where contaminants can enter the system. 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 use off-line filtration with water adsorbent filters to attempt to remove the water from this fluid. We advise that you follow the water drain-off procedure for this component. Resample in 30-45 days to monitor this situation.

PROBLEMATIC TEST RESULTS

Sample Status				**SEVERE**	ABNORMAL	SEVERE
Chromium	ppm	ASTM D5185(m)	>3	▲ **6**	0	▲ 7
Water	%	ASTM D6304*		▲ **0.207**	---	▲ 0.378
ppm Water	ppm	ASTM D6304*		▲ **2075**	---	▲ 3783
Particles >4µm		ASTM D7647	>5000	▲ **154564**	▲ 15578	▲ 148164
Particles >6µm		ASTM D7647	>1300	▲ **63227**	▲ 2817	▲ 38031
Particles >14µm		ASTM D7647	>160	▲ **4563**	148	▲ 1586
Particles >21µm		ASTM D7647	>40	▲ **466**	44	▲ 261
Oil Cleanliness		ISO 4406 (c)	>19/17/14	▲ **24/23/19**	▲ 21/19/14	▲ 24/22/18
Appearance	scalar	Visual*	NORML	▲ **LAYRD**	NORML	▲ WGOIL
Emulsified Water	scalar	Visual*		▲ **1%**	NEG	▲ 1%
Free Water	scalar	Visual*		▲ **>10%**	NEG	▲ 1%
Viscosity Index (VI)	Scale	ASTM D2270*		▲ **206**	94	▲ 54

Customer Id: TERHAM
Sample No.: PC0082719
Lab Number: 02622844
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	---	---	?	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 Dirt Access	---	---	?	We advise that you check all areas where contaminants can enter the system.
Check Seals	---	---	?	Check seals and/or filters for points of contaminant entry.
Filter Fluid	---	---	?	We advise that you use off-line filtration with water adsorbent filters to attempt to remove the water from this fluid.

HISTORICAL DIAGNOSIS

05 Jan 2024 Diag: Kevin Marson

ISO

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

04 Jan 2024 Diag: Kevin Marson

WEAR

Check seals and/or filters for points of contaminant entry. We advise that you check all areas where contaminants can enter the system. 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 that you drain the fluid from the component if this has not already been done. Resample in 30-45 days to monitor this situation.Chromium ppm levels are severe. There is a high amount of particulates (2 to 100 microns in size) present in the fluid. There is a moderate concentration of water present in the fluid. Free water present. Abnormal water content and sodium(Na) level indicate possible sea water contamination. The AN level is acceptable for this fluid. The fluid is no longer serviceable as a result of the abnormal and/or severe wear.

view report

14 Sep 2023 Diag: Bill Quesnel

ISO

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

LUBE 360 DIAGNOSTICS

OIL ANALYSIS REPORT

Sample Rating Trend

ISO

Area
Aft Machinery Space [450270725]
Machine Id
Thruster Aft Starboard - Seal Oil System (S/N Sample Tag CL-06003-S3)
Component
Sealing System
Fluid
PETRO CANADA ENERGOL GR-XP ISO 150 (65 LTR)

DIAGNOSIS

▲ Recommendation

Check seals and/or filters for points of contaminant entry. We advise that you check all areas where contaminants can enter the system. 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 use off-line filtration with water adsorbent filters to attempt to remove the water from this fluid. We advise that you follow the water drain-off procedure for this component. Resample in 30-45 days to monitor this situation.

▲ Wear

Chromium ppm levels are abnormal.

▲ Contamination

There is a high amount of particulates (2 to 100 microns in size) present in the fluid. There is a moderate concentration of water present in the fluid. Excessive free water present.

▲ Fluid Condition

The AN level is acceptable for this fluid. The fluid is no longer serviceable as a result of the abnormal and/or severe wear.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**PC0082719**	PC	PC
Sample Date		Client Info		**26 Feb 2024**	05 Jan 2024	04 Jan 2024
Machine Age	hrs	Client Info		**0**	0	0
Oil Age	hrs	Client Info		**0**	0	0
Oil Changed		Client Info		**N/A**	N/A	N/A
Sample Status				**SEVERE**	ABNORMAL	SEVERE

WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184*		**0**	0	0
Iron	ppm	ASTM D5185(m)	>100	**32**	2	34
Chromium	ppm	ASTM D5185(m)	>3	▲ **6**	0	▲ 7
Nickel	ppm	ASTM D5185(m)	>8	**2**	<1	2
Titanium	ppm	ASTM D5185(m)		**0**	0	0
Silver	ppm	ASTM D5185(m)		**0**	0	0
Aluminum	ppm	ASTM D5185(m)	>3	**<1**	<1	<1
Lead	ppm	ASTM D5185(m)		**0**	0	<1
Copper	ppm	ASTM D5185(m)	>3	**1**	<1	1
Tin	ppm	ASTM D5185(m)		**0**	0	0
Antimony	ppm	ASTM D5185(m)		**0**	0	0
Vanadium	ppm	ASTM D5185(m)		**0**	0	0
Beryllium	ppm	ASTM D5185(m)		**0**	0	0
Cadmium	ppm	ASTM D5185(m)		**0**	0	0

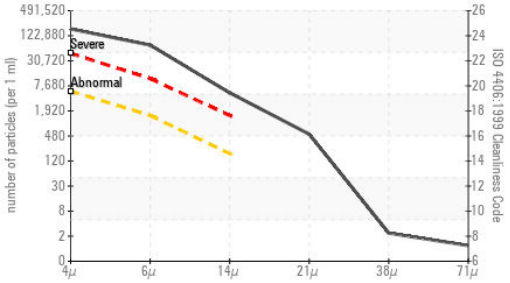
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)		**<1**	12	<1
Barium	ppm	ASTM D5185(m)		**0**	0	0
Molybdenum	ppm	ASTM D5185(m)		**0**	0	0
Manganese	ppm	ASTM D5185(m)		**0**	0	0
Magnesium	ppm	ASTM D5185(m)		**3**	<1	4
Calcium	ppm	ASTM D5185(m)		**5**	5	6
Phosphorus	ppm	ASTM D5185(m)		**134**	170	138
Zinc	ppm	ASTM D5185(m)		**8**	4	10
Sulfur	ppm	ASTM D5185(m)		**9073**	10729	8796
Lithium	ppm	ASTM D5185(m)		**<1**	<1	<1

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>25	**4**	4	9
Sodium	ppm	ASTM D5185(m)		**17**	2	● 20
Potassium	ppm	ASTM D5185(m)	>20	**1**	<1	2
Water	%	ASTM D6304*		▲ **0.207**	---	▲ 0.378
ppm Water	ppm	ASTM D6304*		▲ **2075**	---	▲ 3783

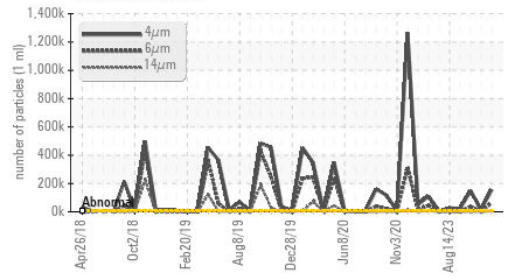
FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>5000	▲ **154564**	▲ 15578	▲ 148164
Particles >6µm		ASTM D7647	>1300	▲ **63227**	▲ 2817	▲ 38031
Particles >14µm		ASTM D7647	>160	▲ **4563**	148	▲ 1586
Particles >21µm		ASTM D7647	>40	▲ **466**	44	▲ 261
Particles >38µm		ASTM D7647	>10	**2**	7	3
Particles >71µm		ASTM D7647	>3	**1**	1	1
Oil Cleanliness		ISO 4406 (c)	>19/17/14	▲ **24/23/19**	▲ 21/19/14	▲ 24/22/18

OIL ANALYSIS REPORT

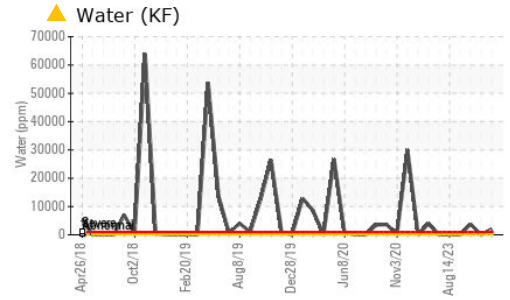
Particle Count



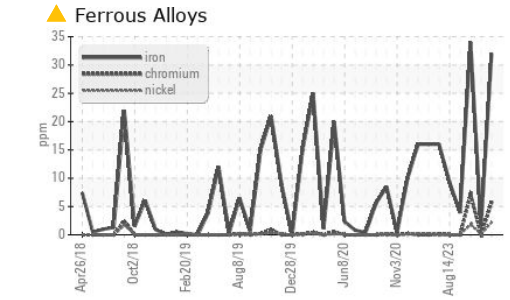
Particle Trend



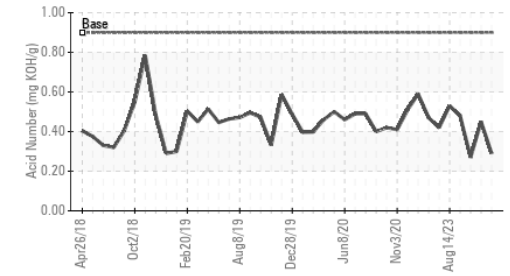
Water (KF)



Ferrous Alloys



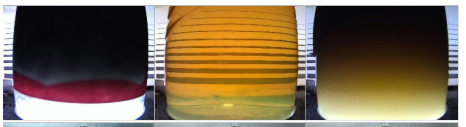
Acid Number



FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	0.9	**0.29**	0.45	0.27

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	▲ **LAYRD**	NORML	▲ WGOIL
Odor	scalar	Visual*	NORML	**NORML**	NORML	NORML
Emulsified Water	scalar	Visual*		▲ **1%**	NEG	▲ 1%
Free Water	scalar	Visual*		▲ **>10%**	NEG	▲ 1%

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	149	**144**	145	143
Visc @ 100°C	cSt	ASTM D7279(m)	14.5	**24.8**	14.2	11.6
Viscosity Index (VI)	Scale	ASTM D2270*		▲ **206**	94	▲ 54

SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					

ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PC0082719 **Received** : 18 Mar 2024
Lab Number : 02622844 **Tested** : 20 Mar 2024
Unique Number : 5747963 **Diagnosed** : 20 Mar 2024 - Kevin Marson
Test Package : MAR 2 (Additional Tests: KF, KV100, PQ, PrtCount, TAN Man, 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.

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