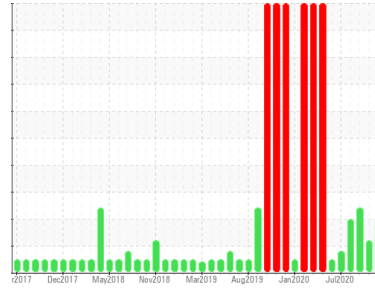


Area
Fwd Machinery Space [450258432]
 Machine Id
Thruster Fwd Aft - Seal Oil System (S/N Sample Tag CL-06004-S3)
 Component
Sealing System
 Fluid
PETRO CANADA ENERGOL GR-XP ISO 150 (65 LTR)



DIAGNOSIS

Recommendation
 We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. We recommend an early resample to monitor this condition.

Wear
 All component wear rates are normal.

Contamination
 There is a moderate amount of particulates (2 to 100 microns in size) present in the fluid.

Fluid Condition
 The AN level is acceptable for this fluid. The fluid 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	PC0080540	PC	PC
Sample Date	Client Info	29 Jan 2024	05 Jan 2024	02 Dec 2023
Machine Age	hrs	0	0	0
Oil Age	hrs	0	0	0
Oil Changed	Client Info	N/A	N/A	N/A
Sample Status		ABNORMAL	ABNORMAL	SEVERE

CONTAMINATION

method	limit/base	current	history1	history2
Water	WC Method	NEG	NEG	NEG

WEAR METALS

method	limit/base	current	history1	history2	
PQ	ASTM D8184*	0	0	0	
Iron	ppm	ASTM D5185(m) >100	<1	<1	13
Chromium	ppm	ASTM D5185(m) >3	0	0	1
Nickel	ppm	ASTM D5185(m) >8	0	<1	1
Titanium	ppm	ASTM D5185(m)	0	0	0
Silver	ppm	ASTM D5185(m)	0	2	0
Aluminum	ppm	ASTM D5185(m) >3	<1	<1	<1
Lead	ppm	ASTM D5185(m)	0	0	<1
Copper	ppm	ASTM D5185(m) >3	0	<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

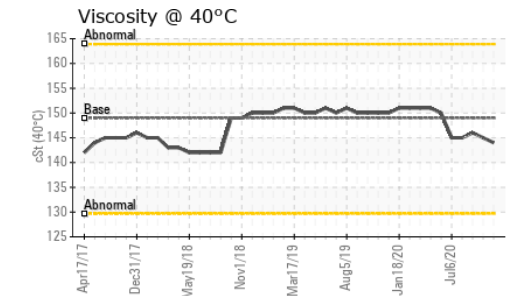
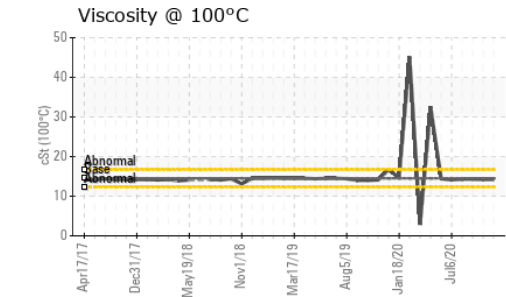
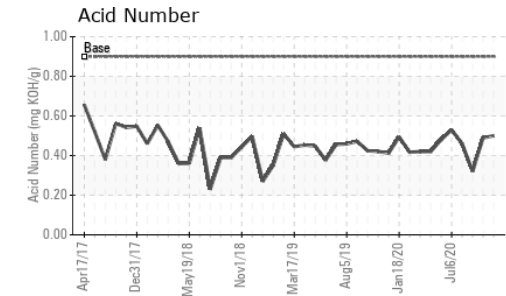
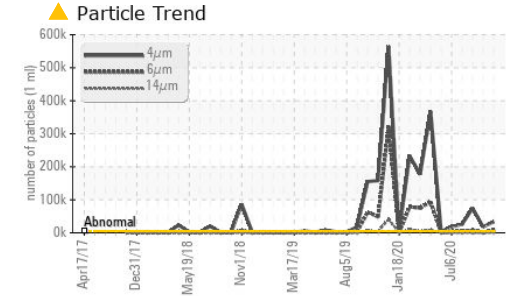
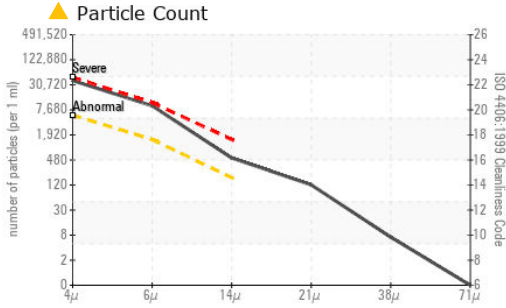
ADDITIVES

method	limit/base	current	history1	history2	
Boron	ppm	ASTM D5185(m)	16	14	5
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)	<1	<1	1
Calcium	ppm	ASTM D5185(m)	11	15	31
Phosphorus	ppm	ASTM D5185(m)	169	170	157
Zinc	ppm	ASTM D5185(m)	4	6	10
Sulfur	ppm	ASTM D5185(m)	9098	9522	12325
Lithium	ppm	ASTM D5185(m)	<1	<1	<1

CONTAMINANTS

method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185(m) >25	3	3	3
Sodium	ppm	ASTM D5185(m)	<1	<1	3
Potassium	ppm	ASTM D5185(m) >20	<1	<1	0

OIL ANALYSIS REPORT



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PC0080540 **Received** : 16 Feb 2024
Lab Number : **02616448** **Tested** : 20 Feb 2024
Unique Number : 5733558 **Diagnosed** : 20 Feb 2024 - Kevin Marson
Test Package : MAR 2 (Additional Tests: 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.

FLUID CLEANLINESS	method	limit/base	current	history1	history2
Particles >4μm	ASTM D7647	>5000	▲ 33662	▲ 17971	● 74465
Particles >6μm	ASTM D7647	>1300	▲ 8368	▲ 1822	▲ 7220
Particles >14μm	ASTM D7647	>160	▲ 472	50	▲ 194
Particles >21μm	ASTM D7647	>40	▲ 107	8	39
Particles >38μm	ASTM D7647	>10	6	1	6
Particles >71μm	ASTM D7647	>3	0	0	1
Oil Cleanliness	ISO 4406 (c)	>19/17/14	▲ 22/20/16	▲ 21/18/13	● 23/20/15

FLUID DEGRADATION	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g ASTM D974*	0.9	0.50	0.49	0.32

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	NORML	NORML	NORML
Odor	scalar Visual*	NORML	NORML	NORML	NORML
Emulsified Water	scalar Visual*		NEG	NEG	NEG
Free Water	scalar Visual*		NEG	NEG	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt ASTM D7279(m)	149	144	145	146
Visc @ 100°C	cSt ASTM D7279(m)	14.5	14.2	14.2	14.3
Viscosity Index (VI)	Scale ASTM D2270*		95	94	95

SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					