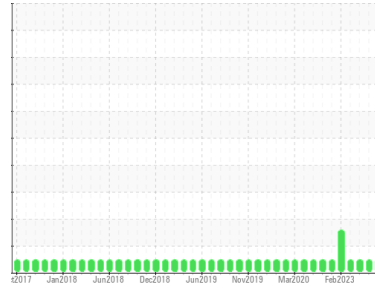


Area
Fwd Machinery Space
Machine Id
Thruster Fwd Aft - Lubrication System (S/N Sample Tag CL-06004-S1)
Component
Lube System
Fluid
PETRO CANADA ENERGOL GR-XP ISO 150 (5000 LTR)



DIAGNOSIS

Recommendation
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.

Wear
Component wear rates appear to be normal (unconfirmed).

Contamination
The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable.

Fluid Condition
The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	PC	PC0076464	PC
Sample Date	Client Info	01 Dec 2023	09 Nov 2023	14 Sep 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		NORMAL	NORMAL	NORMAL

CONTAMINATION

method	limit/base	current	history1	history2
Water	WC Method >0.05	NEG	NEG	NEG

WEAR METALS

method	limit/base	current	history1	history2
PQ	ASTM D8184*	0	0	0
Iron	ppm ASTM D5185(m) >20	<1	<1	<1
Chromium	ppm ASTM D5185(m) >10	0	0	0
Nickel	ppm ASTM D5185(m) >10	<1	0	<1
Titanium	ppm ASTM D5185(m)	0	0	0
Silver	ppm ASTM D5185(m)	0	<1	<1
Aluminum	ppm ASTM D5185(m) >10	<1	0	0
Lead	ppm ASTM D5185(m) >20	<1	0	0
Copper	ppm ASTM D5185(m) >20	<1	<1	<1
Tin	ppm ASTM D5185(m) >10	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

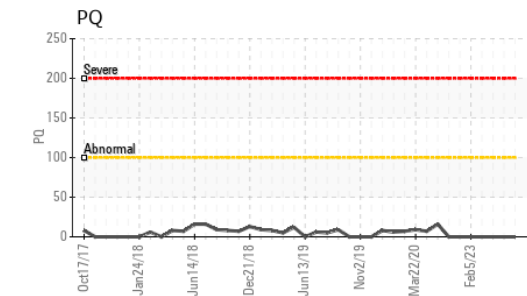
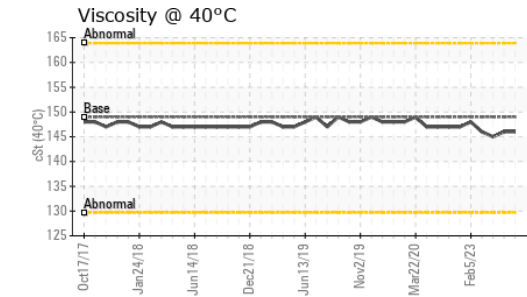
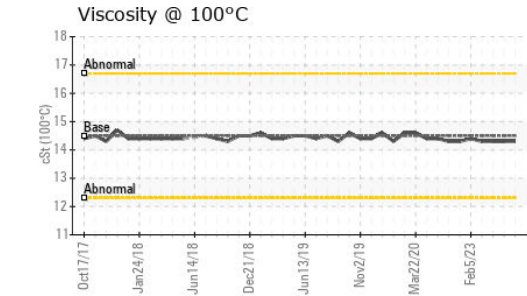
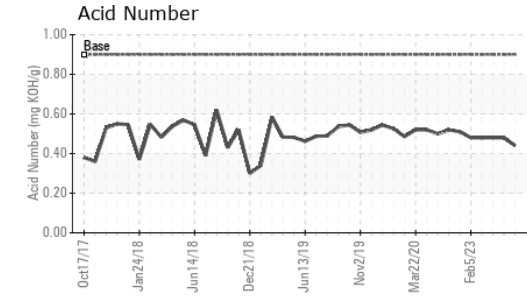
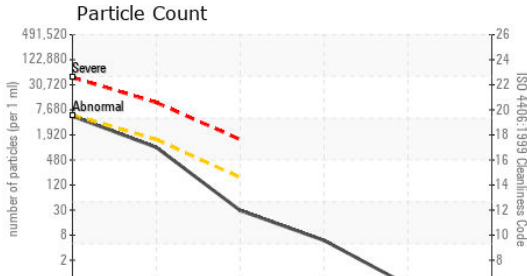
ADDITIVES

method	limit/base	current	history1	history2
Boron	ppm ASTM D5185(m)	11	12	11
Barium	ppm ASTM D5185(m)	0	<1	<1
Molybdenum	ppm ASTM D5185(m)	0	0	0
Manganese	ppm ASTM D5185(m)	0	0	0
Magnesium	ppm ASTM D5185(m)	<1	0	<1
Calcium	ppm ASTM D5185(m)	15	15	15
Phosphorus	ppm ASTM D5185(m)	167	165	168
Zinc	ppm ASTM D5185(m)	5	3	6
Sulfur	ppm ASTM D5185(m)	13007	12760	13280
Lithium	ppm ASTM D5185(m)	<1	<1	<1

CONTAMINANTS

method	limit/base	current	history1	history2
Silicon	ppm ASTM D5185(m) >15	1	1	1
Sodium	ppm ASTM D5185(m)	0	0	<1
Potassium	ppm ASTM D5185(m) >20	0	0	0

OIL ANALYSIS REPORT



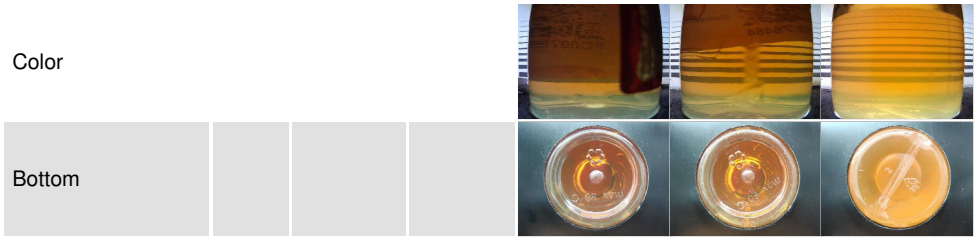
FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>5000	4734	4896	3445	
Particles >6µm	ASTM D7647	>1300	844	935	463	
Particles >14µm	ASTM D7647	>160	26	27	8	
Particles >21µm	ASTM D7647	>40	5	6	3	
Particles >38µm	ASTM D7647	>10	0	1	1	
Particles >71µm	ASTM D7647	>3	0	1	1	
Oil Cleanliness	ISO 4406 (c)	>19/17/14	19/17/12	19/17/12	19/16/10	

FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	0.9	0.44	0.48	0.48

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*	>0.05	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	146	146	145
Visc @ 100°C	cSt	ASTM D7279(m)	14.5	14.3	14.3	14.3
Viscosity Index (VI)	Scale	ASTM D2270*		95	95	95

SAMPLE IMAGES



Color

Bottom



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PC
Lab Number : **02605547** **Received** : 28 Dec 2023
Unique Number : 5698632 **Diagnosed** : 02 Jan 2024
Test Package : MAR 2 (Additional Tests: KV100, PQ, VI) **Diagnostician** : Kevin Marson

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 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.