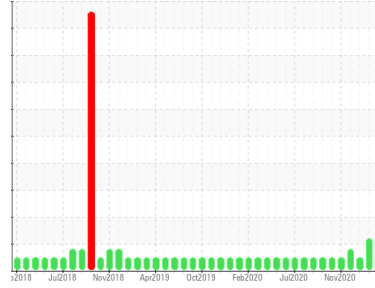


Area
Aft Machinery Space [450204421]
Machine Id
Thruster Aft Port - Lubrication System (S/N Sample Tag CL-06002-S1)
Component
Lube System
Fluid
PETRO CANADA ENERGOL GR-XP ISO 150 (5000 LTR)



DIAGNOSIS

Recommendation
Resample at the next service interval to monitor.

Wear
All component wear rates are normal.

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	PC	PC
Sample Date	Client Info	14 Sep 2023	14 Aug 2023	31 Mar 2023
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		NORMAL	ABNORMAL	NORMAL

WEAR METALS method limit/base current history1 history2

PQ	ASTM D8184*		0	0	0
Iron	ppm ASTM D5185(m)	>20	3	3	4
Chromium	ppm ASTM D5185(m)	>10	0	0	0
Nickel	ppm ASTM D5185(m)	>10	<1	<1	<1
Titanium	ppm ASTM D5185(m)		0	0	0
Silver	ppm ASTM D5185(m)		<1	0	0
Aluminum	ppm ASTM D5185(m)	>10	<1	<1	<1
Lead	ppm ASTM D5185(m)	>20	<1	0	0
Copper	ppm ASTM D5185(m)	>20	<1	<1	0
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)		10	10	7
Barium	ppm ASTM D5185(m)		<1	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	0
Calcium	ppm ASTM D5185(m)		4	3	1
Phosphorus	ppm ASTM D5185(m)		174	191	185
Zinc	ppm ASTM D5185(m)		10	6	6
Sulfur	ppm ASTM D5185(m)		14022	14212	17100
Lithium	ppm ASTM D5185(m)		<1	<1	<1

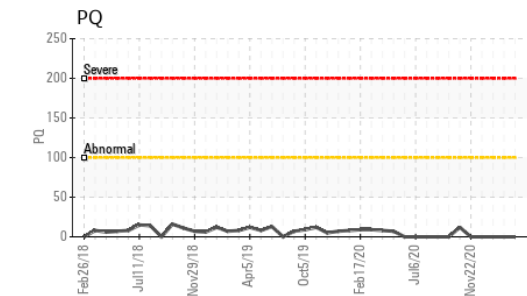
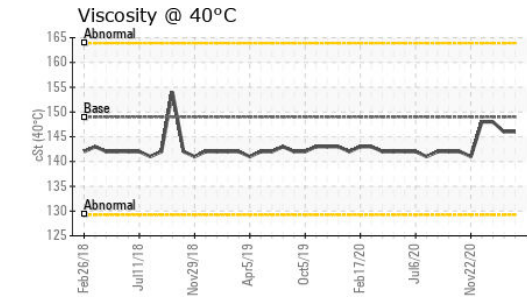
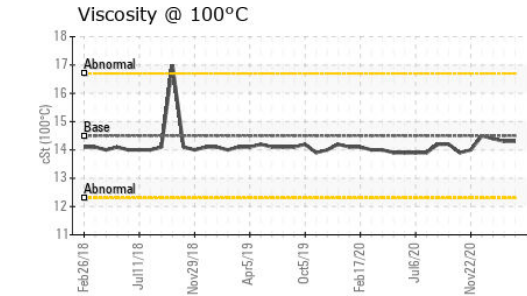
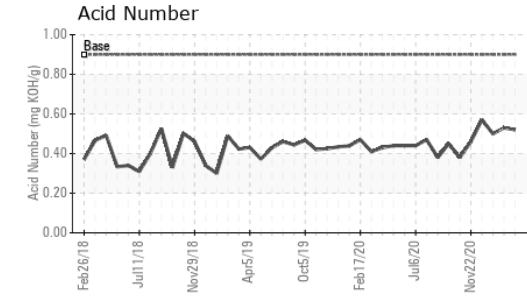
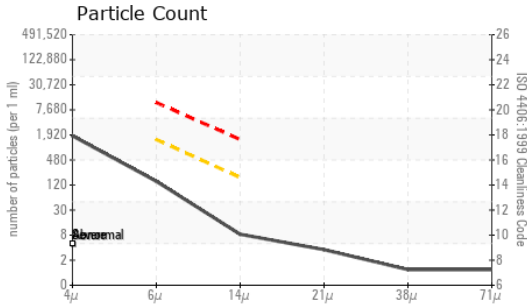
CONTAMINANTS method limit/base current history1 history2

Silicon	ppm ASTM D5185(m)	>15	1	1	0
Sodium	ppm ASTM D5185(m)		1	<1	0
Potassium	ppm ASTM D5185(m)	>20	0	<1	0

FLUID CLEANLINESS method limit/base current history1 history2

Particles >4µm	ASTM D7647		1597	14383	3510
Particles >6µm	ASTM D7647	>1300	130	▲ 3682	1028
Particles >14µm	ASTM D7647	>160	7	▲ 203	94
Particles >21µm	ASTM D7647	>40	3	47	22
Particles >38µm	ASTM D7647	>10	1	1	1
Particles >71µm	ASTM D7647	>3	1	0	0
Oil Cleanliness	ISO 4406 (c)	>--/17/14	18/14/10	▲ 21/19/15	19/17/14

OIL ANALYSIS REPORT

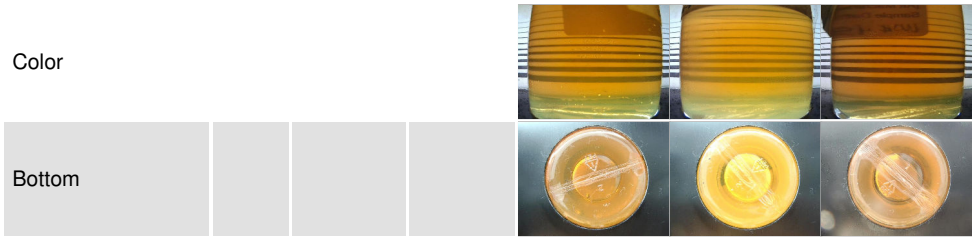


FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	0.9	0.52	0.53	0.50

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	VLITE	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	148
Visc @ 100°C	cSt	ASTM D7279(m)	14.5	14.3	14.3	14.4
Viscosity Index (VI)	Scale	ASTM D2270*		95	95	94

SAMPLE IMAGES



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PC
Lab Number : **02585053** **Received** : 25 Sep 2023
Unique Number : 5646118 **Diagnosed** : 26 Sep 2023
Test Package : MAR 2 (Additional Tests: KV100, PQ, TAN Man, VI) **Diagnostician** : Bill Quesnel

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 Scotia Centre, 235 Water Strret
 St. John's, NL
 CA A1C 1B6
 Contact: Josh Hynes
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 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.