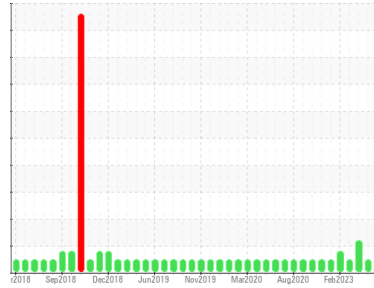


Area
Aft Machinery Space
Machine Id
Thruster Aft Port - Lubrication System (S/N Sample Tag CL-06002-S1)
Component
Lube System
Fluid
PETRO CANADA ENERGOL GR-XP ISO 150 (5000 LTR)



DIAGNOSIS

Recommendation
Resample at the next service interval to monitor. 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	PC	PC
Sample Date	Client Info	04 Jan 2024	14 Sep 2023	14 Aug 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	ABNORMAL

CONTAMINATION method limit/base current history1 history2

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

PQ	ASTM D8184*		0	0	0
Iron	ppm	ASTM D5185(m) >20	4	3	3
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)	0	<1	0
Aluminum	ppm	ASTM D5185(m) >10	<1	<1	<1
Lead	ppm	ASTM D5185(m) >20	0	<1	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

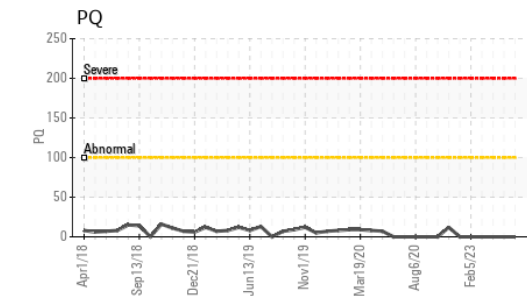
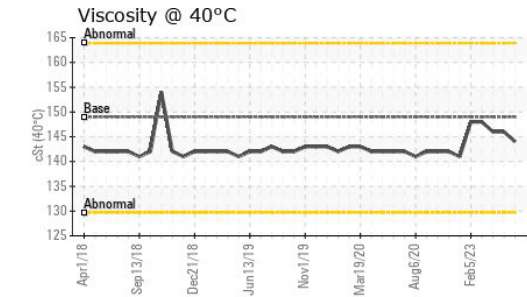
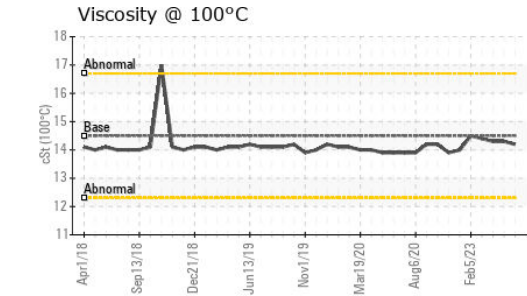
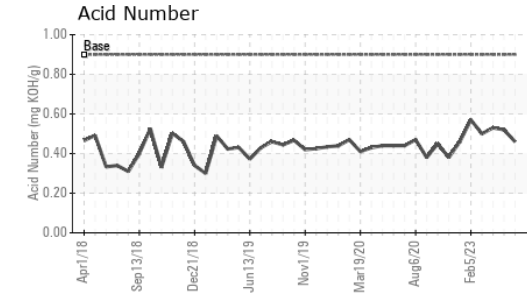
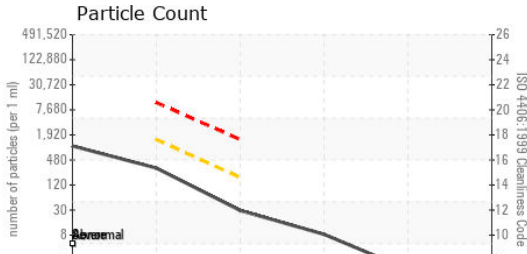
ADDITIVES method limit/base current history1 history2

Boron	ppm	ASTM D5185(m)	5	10	10
Barium	ppm	ASTM D5185(m)	0	<1	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)	3	4	3
Phosphorus	ppm	ASTM D5185(m)	161	174	191
Zinc	ppm	ASTM D5185(m)	12	10	6
Sulfur	ppm	ASTM D5185(m)	13783	14022	14212
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	1	<1
Potassium	ppm	ASTM D5185(m) >20	<1	0	<1

OIL ANALYSIS REPORT



FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647			914	1597	14383
Particles >6µm	ASTM D7647	>1300		270	130	▲ 3682
Particles >14µm	ASTM D7647	>160		26	7	▲ 203
Particles >21µm	ASTM D7647	>40		7	3	47
Particles >38µm	ASTM D7647	>10		1	1	1
Particles >71µm	ASTM D7647	>3		0	1	0
Oil Cleanliness	ISO 4406 (c)	>--/17/14		17/15/12	18/14/10	▲ 21/19/15

FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	0.9	0.46	0.52	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	VLITE
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	144	146	146
Visc @ 100°C	cSt	ASTM D7279(m)	14.5	14.2	14.3	14.3
Viscosity Index (VI)	Scale	ASTM D2270*		95	95	95

SAMPLE IMAGES		method	limit/base	current	history1	history2
Color						
Bottom						



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PC
Lab Number : **02611252** **Received** : 25 Jan 2024
Unique Number : 5720347 **Diagnosed** : 26 Jan 2024
Test Package : MAR 2 (Additional Tests: KV100, PQ, TAN Man, VI) **Diagnostician** : Kevin Marson

Suncor - Terra Nova Projects
 Scotia Centre, 235 Water Street
 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.