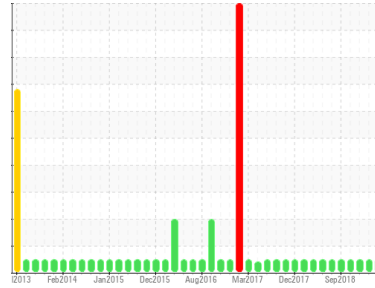


Area
Main Power Generation [71122746]
Machine Id
Generator - MPG (Port) Lube Oil System (S/N Sample Tag XX-80201-S1)
Component
Turbine
Fluid
PETRO CANADA TURBOFLO 32 (8300 LTR)



DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

MPC (Membrane Patch Colorimetry) test indicates acceptable levels of varnish present. The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The water content is negligible. The system and fluid cleanliness is acceptable.

Fluid Condition

Linear Sweep Voltammetry (RULER – ASTM D6971) testing indicates normal levels of anti-oxidants present in the oil. 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	26 Dec 2018	03 Dec 2018	30 Oct 2018
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	NORMAL	NORMAL

WEAR METALS

method	limit/base	current	history1	history2
PQ	ASTM D8184*	5	18	6
Iron	ppm ASTM D5185(m) >15	<1	<1	<1
Chromium	ppm ASTM D5185(m) >4	0	0	0
Nickel	ppm ASTM D5185(m) >2	0	0	0
Titanium	ppm ASTM D5185(m)	0	0	0
Silver	ppm ASTM D5185(m)	0	0	0
Aluminum	ppm ASTM D5185(m) >10	0	<1	0
Lead	ppm ASTM D5185(m)	<1	<1	<1
Copper	ppm ASTM D5185(m) >5	<1	<1	<1
Tin	ppm ASTM D5185(m) >5	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)	<1	<1	0

ADDITIVES

method	limit/base	current	history1	history2
Boron	ppm ASTM D5185(m) 0	0	<1	<1
Barium	ppm ASTM D5185(m) 0	0	0	0
Molybdenum	ppm ASTM D5185(m) 0	0	0	0
Manganese	ppm ASTM D5185(m)	0	0	0
Magnesium	ppm ASTM D5185(m) 0	<1	<1	<1
Calcium	ppm ASTM D5185(m) 0	<1	<1	<1
Phosphorus	ppm ASTM D5185(m) 120	241	247	229
Zinc	ppm ASTM D5185(m) 0.0	<1	<1	<1
Sulfur	ppm ASTM D5185(m) 0	477	491	464
Lithium	ppm ASTM D5185(m)	0	0	0

CONTAMINANTS

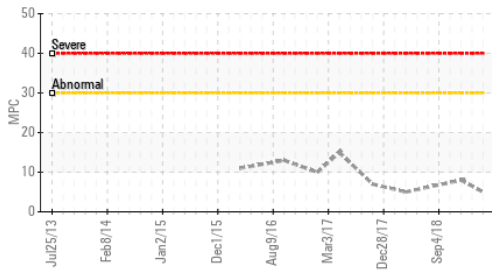
method	limit/base	current	history1	history2
Silicon	ppm ASTM D5185(m) >15	<1	<1	<1
Sodium	ppm ASTM D5185(m)	0	0	<1
Potassium	ppm ASTM D5185(m) >20	<1	0	<1
Water	% ASTM D6304* >0.03	0.000	---	0.001
ppm Water	ppm ASTM D6304* >300	8.6	---	10.4

INFRA-RED

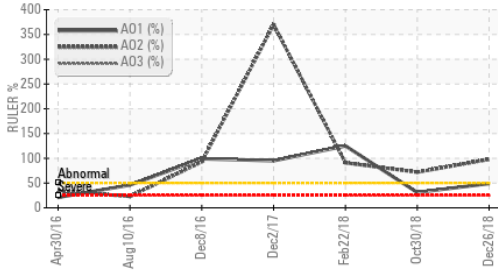
method	limit/base	current	history1	history2
Soot %	% ASTM D7844*	0	---	0
Nitration	Abs/cm ASTM D7624*	2.0	---	2.0
Sulfation	Abs/.1mm ASTM D7415*	13.1	---	13.3

OIL ANALYSIS REPORT

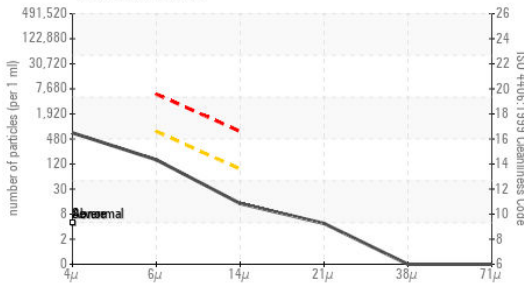
Varnish Potential



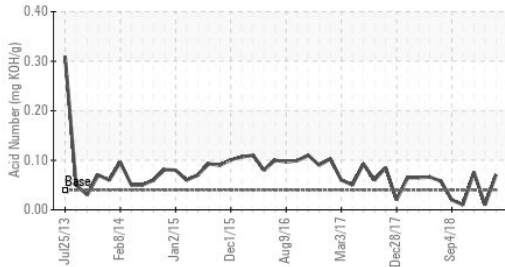
Remaining Life (RULER)



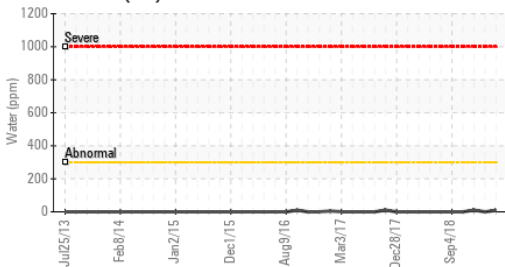
Particle Count



Acid Number



Water (KF)



FLUID CLEANLINESS	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647		592	404	155
Particles >6µm	ASTM D7647	>640	134	93	30
Particles >14µm	ASTM D7647	>80	12	7	5
Particles >21µm	ASTM D7647	>20	4	0	1
Particles >38µm	ASTM D7647	>4	0	0	0
Particles >71µm	ASTM D7647	>3	0	0	0
Oil Cleanliness	ISO 4406 (c)	>--/16/13	16/14/11	16/14/10	14/12/10

FLUID DEGRADATION	method	limit/base	current	history1	history2
Oxidation	Abs./1mm ASTM D7414*		4.0	---	4.1
Acid Number (AN)	mg KOH/g ASTM D974*	0.04	0.071	0.01	0.076
Anti-Oxidant 1	% ASTM D6971*	<25	49	---	31
Anti-Oxidant 2	% ASTM D6971*	<25	98	---	72
MPC Varnish Potential	Scale ASTM D7843(m)*	>15	5	---	8

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*	>0.03	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)	34.0	33.7	33.6	33.6
Visc @ 100°C	cSt ASTM D7279(m)	5.59	5.6	5.5	5.6
Viscosity Index (VI)	Scale ASTM D2270*	110	103	98	103

SAMPLE IMAGES method limit/base current history1 history2

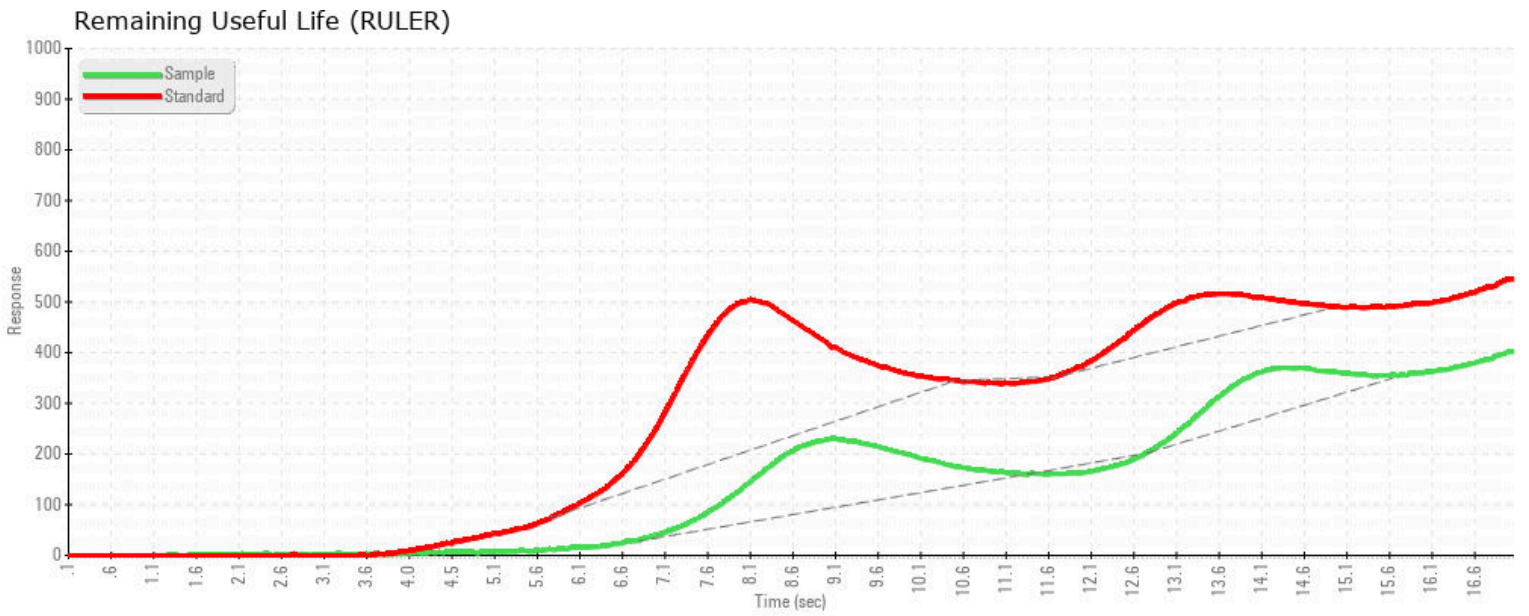
Color		no image	
Bottom		no image	
MPC		no image	



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PC
Lab Number : **02265116** **Received** : 29 Jan 2019
Unique Number : 4812342 **Diagnosed** : 14 Feb 2019
Test Package : AOM 1 **Diagnostician** : Bill Quesnel

Suncor - Terra Nova Projects
 Scotia Centre, 235 Water Street
 St. John's, NL
 CA A1C 1B6
 Contact: Josh Hynes
 joshhynes@suncor.com
 T: (709)778-3575
 F: (709)724-2835

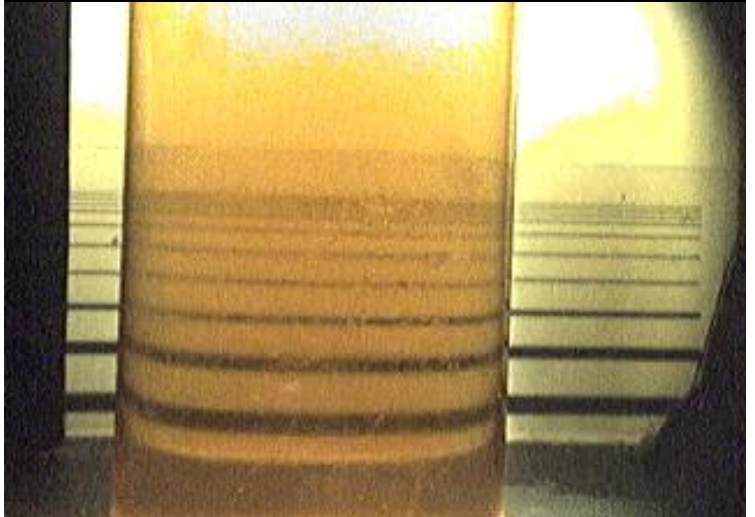
To discuss this sample report, contact Customer Service at 1-800-268-2131.
 Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab.
 Validity of results and interpretation are based on the sample and information as supplied.



MPC (Varnish Test)



Sample Color & Clarity



This page left intentionally blank