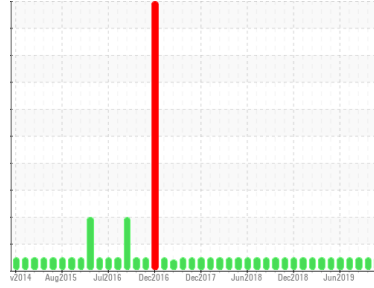


Area
Main Power Generation [71128347]
Machine Id
Generator - MPG (Port) Lube Oil System (S/N Sample Tag XX-80201-S1)
Component
Turbine
Fluid
PETRO CANADA TURBOFLO 32 (8300 LTR)



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	PC0018556	PC	PC0006193
Sample Date	Client Info	07 Oct 2019	07 Sep 2019	08 Aug 2019
Machine Age	hrs	Client Info	0	0
Oil Age	hrs	Client Info	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	7	8
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	<1
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)	0	0	0
Copper	ppm	ASTM D5185(m) >5	<1	<1	<1
Tin	ppm	ASTM D5185(m) >5	0	0	0
Antimony	ppm	ASTM D5185(m)	<1	<1	<1
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) 0	<1	<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	0	0	0
Calcium	ppm	ASTM D5185(m) 0	<1	<1	<1
Phosphorus	ppm	ASTM D5185(m) 120	265	256	258
Zinc	ppm	ASTM D5185(m) 0.0	<1	<1	<1
Sulfur	ppm	ASTM D5185(m) 0	509	506	506
Lithium	ppm	ASTM D5185(m)	<1	<1	<1

CONTAMINANTS method limit/base current history1 history2

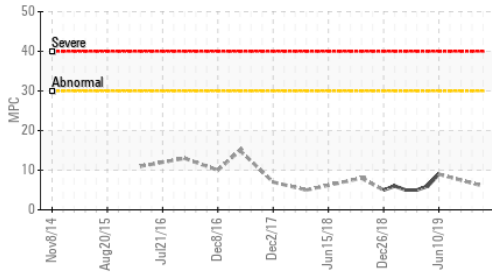
Silicon	ppm	ASTM D5185(m) >15	<1	<1	<1
Sodium	ppm	ASTM D5185(m)	0	0	0
Potassium	ppm	ASTM D5185(m) >20	<1	<1	<1
Water	%	ASTM D6304* >0.03	0.002	---	---
ppm Water	ppm	ASTM D6304* >300	20.3	---	---

INFRA-RED method limit/base current history1 history2

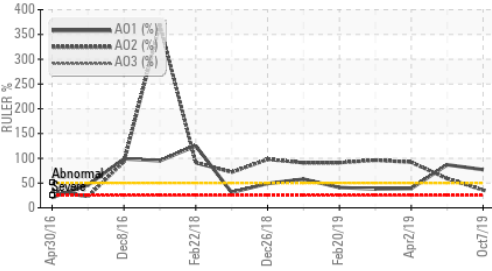
Soot %	%	ASTM D7844*	0	---	---
Nitration	Abs/cm	ASTM D7624*	2.4	---	---
Sulfation	Abs/.1mm	ASTM D7415*	14.9	---	---

OIL ANALYSIS REPORT

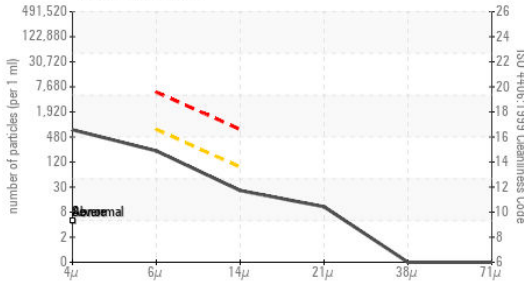
Varnish Potential



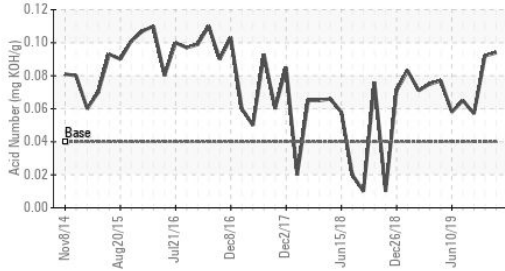
Remaining Life (RULER)



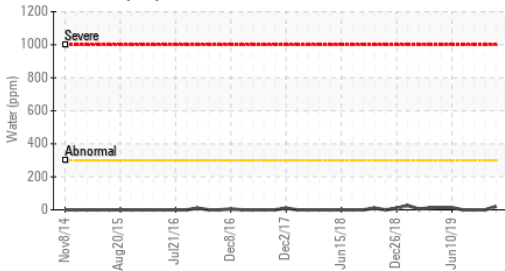
Particle Count



Acid Number



Water (KF)



FLUID CLEANLINESS method limit/base current history1 history2

Particles >4µm	ASTM D7647		627	70	168
Particles >6µm	ASTM D7647	>640	196	27	44
Particles >14µm	ASTM D7647	>80	22	5	3
Particles >21µm	ASTM D7647	>20	9	2	1
Particles >38µm	ASTM D7647	>4	0	0	0
Particles >71µm	ASTM D7647	>3	0	0	0
Oil Cleanliness	ISO 4406 (c)	>--/16/13	16/15/12	13/12/10	15/13/9

FLUID DEGRADATION method limit/base current history1 history2

Oxidation	Abs./1mm	ASTM D7414*		3.8	---	---
Acid Number (AN)	mg KOH/g	ASTM D974*	0.04	0.094	0.092	0.057
Anti-Oxidant 1	%	ASTM D6971*	<25	77	---	---
Anti-Oxidant 2	%	ASTM D6971*	<25	36	---	---
MPC Varnish Potential	Scale	ASTM D7843(m)*	>15	6	---	---

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	33.7
Visc @ 100°C	cSt	ASTM D7279(m)	5.59	5.5	5.6	5.6
Viscosity Index (VI)	Scale	ASTM D2270*	110	97	103	103

SAMPLE IMAGES method limit/base current history1 history2

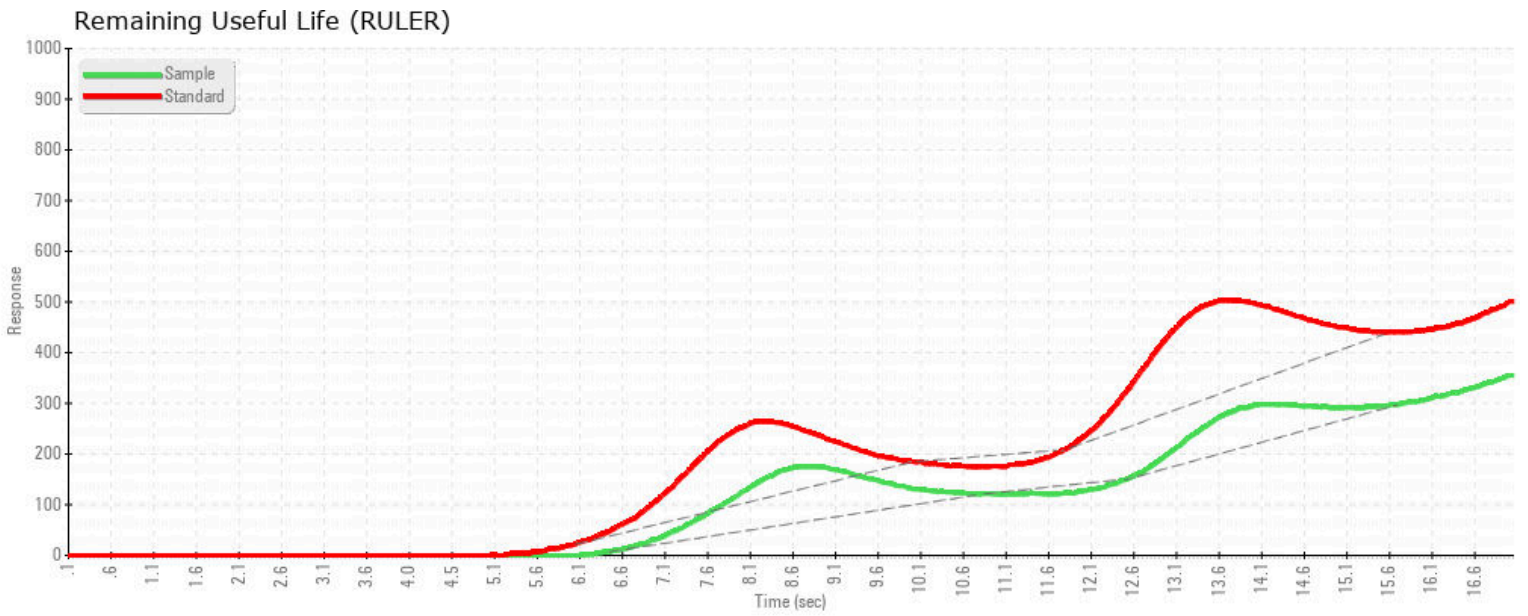
Color					
Bottom					
MPC				no image	no image



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PC0018556 **Received** : 11 Oct 2019
Lab Number : **02313972** **Diagnosed** : 17 Oct 2019
Unique Number : 4941262 **Diagnostician** : Bill Quesnel
Test Package : AOM 1

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