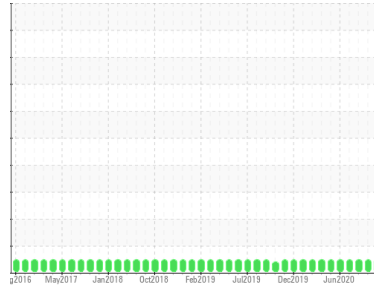


Area
Main Power Generation [71134579]
Machine Id
Generator MPG (Stbd) - Lubrication System (S/N Sample Tag XX-80101-S1)
Component
Turbine
Fluid
PETRO CANADA TURBOFLO 32 (8300 LTR)



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	06 Sep 2020	06 Sep 2020	06 Sep 2020
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*		16	---	---
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	<1	<1
Titanium	ppm ASTM D5185(m)		0	0	0
Silver	ppm ASTM D5185(m)		<1	<1	0
Aluminum	ppm ASTM D5185(m)	>10	<1	<1	<1
Lead	ppm ASTM D5185(m)		0	0	<1
Copper	ppm ASTM D5185(m)	>5	<1	<1	<1
Tin	ppm ASTM D5185(m)	>5	<1	<1	<1
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	<1	0	0
Calcium	ppm ASTM D5185(m)	0	<1	<1	<1
Phosphorus	ppm ASTM D5185(m)	120	264	272	272
Zinc	ppm ASTM D5185(m)	0.0	2	<1	<1
Sulfur	ppm ASTM D5185(m)	0	642	656	655
Lithium	ppm ASTM D5185(m)		<1	<1	<1

CONTAMINANTS method limit/base current history1 history2

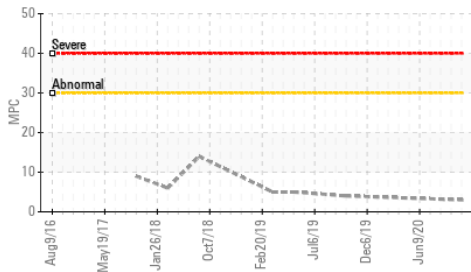
Silicon	ppm ASTM D5185(m)	>15	0	0	0
Sodium	ppm ASTM D5185(m)		0	0	0
Potassium	ppm ASTM D5185(m)	>20	<1	<1	0
Water	% ASTM D6304*	>0.03	0.001	---	---
ppm Water	ppm ASTM D6304*	>300	11.7	---	---

INFRA-RED method limit/base current history1 history2

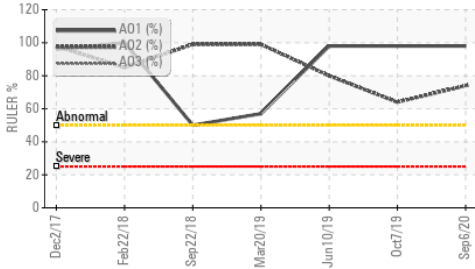
Soot %	% ASTM D7844*		0	---	---
Nitration	Abs/cm ASTM D7624*		1.7	---	---
Sulfation	Abs/.1mm ASTM D7415*		11.8	---	---

OIL ANALYSIS REPORT

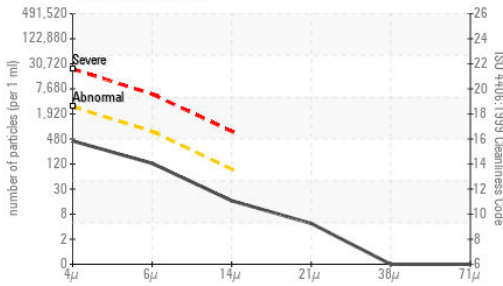
Varnish Potential



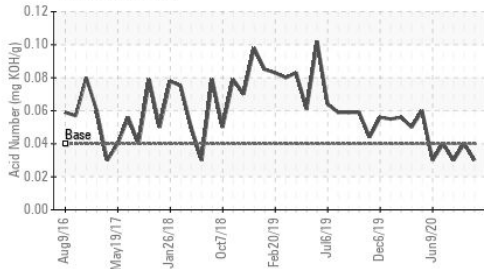
Remaining Life (RULER)



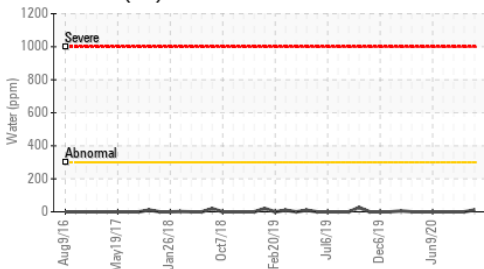
Particle Count



Acid Number



Water (KF)



FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>2500	379	665	1953	
Particles >6µm	ASTM D7647	>640	110	151	343	
Particles >14µm	ASTM D7647	>80	14	5	11	
Particles >21µm	ASTM D7647	>20	4	1	2	
Particles >38µm	ASTM D7647	>4	0	0	0	
Particles >71µm	ASTM D7647	>3	0	0	0	
Oil Cleanliness	ISO 4406 (c)	>18/16/13	16/14/11	17/14/10	18/16/11	

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs./1mm	ASTM D7414*		2.1	---	---
Acid Number (AN)	mg KOH/g	ASTM D974*	0.04	0.03	0.04	0.03
Anti-Oxidant 1	%	ASTM D6971*	<25	98	---	---
Anti-Oxidant 2	%	ASTM D6971*	<25	74	---	---
MPC Varnish Potential	Scale	ASTM D7843(m)*	>15	3	---	---

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	33.9	34.0	34.0
Visc @ 100°C	cSt	ASTM D7279(m)	5.59	5.7	5.7	5.6
Viscosity Index (VI)	Scale	ASTM D2270*	110	107	107	101

SAMPLE IMAGES

method	limit/base	current	history1	history2
Color				
Bottom				
MPC				

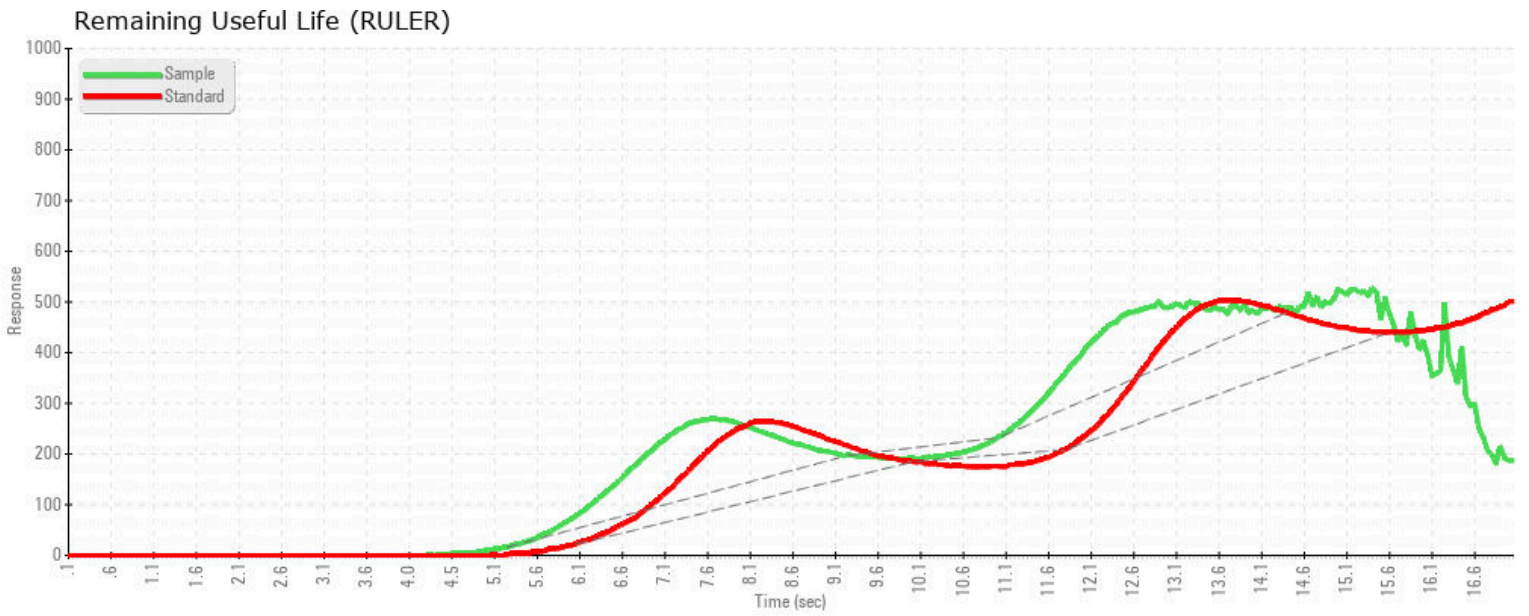


ISO 17025:2017
Accredited
Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
 Sample No. : PC
 Lab Number : **02376663**
 Unique Number : 5108116
 Test Package : AOM 1
 Received : 18 Sep 2020
 Tested : 22 Sep 2020
 Diagnosed : 22 Sep 2020 - Kevin Marson

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

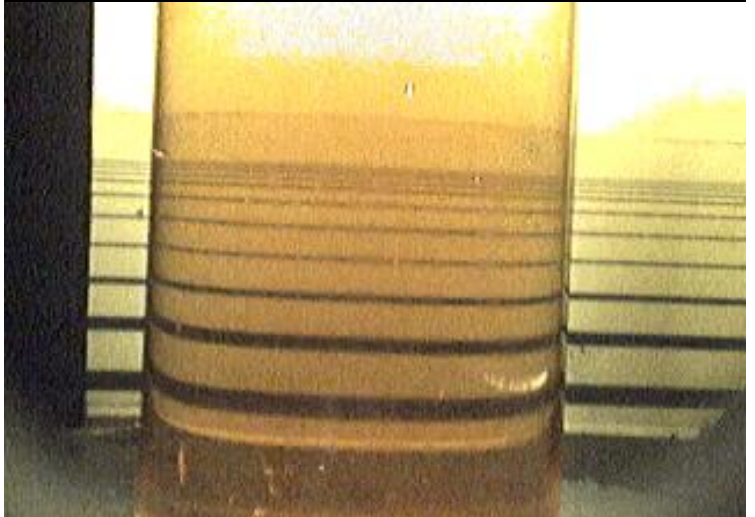
To discuss this sample report, contact Customer Service at 1-800-268-2131.
 Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab.
 Validity of results and interpretation are based on the sample and information as supplied.



MPC (Varnish Test)



Sample Color & Clarity



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