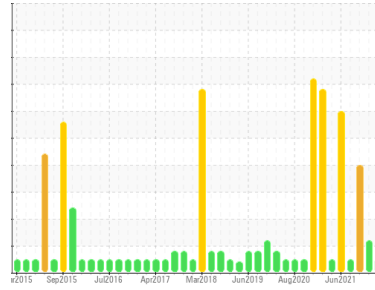


Area
Cranes [450159533]
Machine Id
Crane - Mid Ship Luffing Winch Gearbox (S/N Sample Tag MA-04002-S6)
Component
Gearbox
Fluid
PETRO CANADA GEARLUBE TOS 80W90 (40 LTR)



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	history 1	history 2
Sample Number	Client Info		PC0052193	PC0040554	PC416831
Sample Date	Client Info		14 Jun 2023	02 May 2023	05 Oct 2021
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	ATTENTION	SEVERE

WEAR METALS

	method	limit/base	current	history 1	history 2
PQ	ASTM D8184*		0	0	0
Iron	ppm	ASTM D5185(m) >150	5	8	5
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	<1
Aluminum	ppm	ASTM D5185(m) >5	<1	0	<1
Lead	ppm	ASTM D5185(m) >65	0	0	<1
Copper	ppm	ASTM D5185(m) >80	<1	0	<1
Tin	ppm	ASTM D5185(m) >8	0	0	0
Antimony	ppm	ASTM D5185(m) >5	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	history 1	history 2
Boron	ppm	ASTM D5185(m) 240	230	216	208
Barium	ppm	ASTM D5185(m) 1	0	0	<1
Molybdenum	ppm	ASTM D5185(m) 0.0	<1	0	0
Manganese	ppm	ASTM D5185(m)	0	<1	<1
Magnesium	ppm	ASTM D5185(m) 2	2	1	2
Calcium	ppm	ASTM D5185(m) 6	5	5	45
Phosphorus	ppm	ASTM D5185(m) 1000	1012	993	842
Zinc	ppm	ASTM D5185(m) 3	16	31	23
Sulfur	ppm	ASTM D5185(m) 19400	17483	17736	15118
Lithium	ppm	ASTM D5185(m)	<1	<1	<1

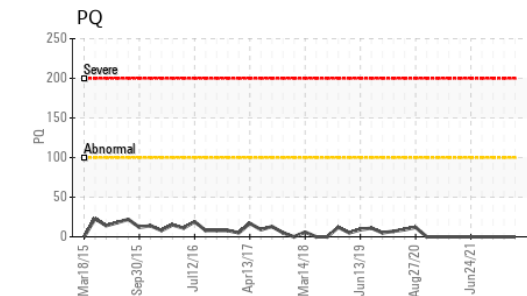
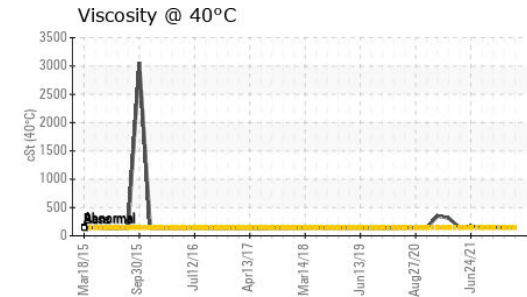
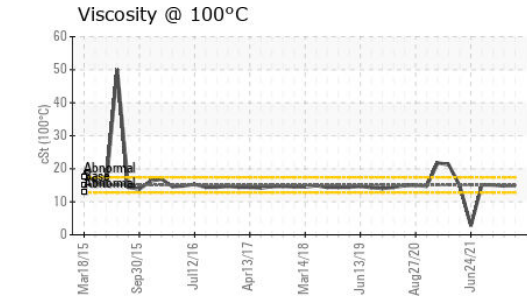
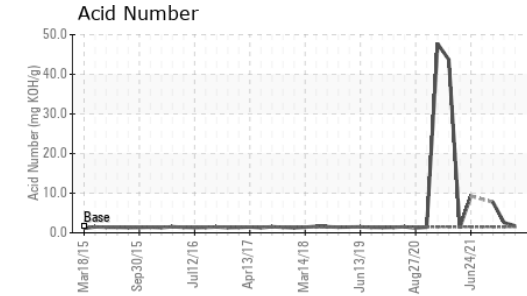
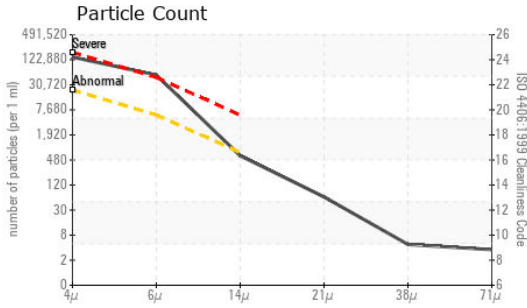
CONTAMINANTS

	method	limit/base	current	history 1	history 2
Silicon	ppm	ASTM D5185(m) >20	4	3	3
Sodium	ppm	ASTM D5185(m)	4	<1	<1
Potassium	ppm	ASTM D5185(m) >20	3	<1	<1

FLUID CLEANLINESS

	method	limit/base	current	history 1	history 2
Particles >4µm	ASTM D7647	>20000	122773	72372	▲ 96377
Particles >6µm	ASTM D7647	>5000	45602	19244	▲ 21882
Particles >14µm	ASTM D7647	>640	532	▲ 885	283
Particles >21µm	ASTM D7647	>160	55	▲ 267	52
Particles >38µm	ASTM D7647	>40	4	17	2
Particles >71µm	ASTM D7647	>10	3	0	0
Oil Cleanliness	ISO 4406 (c)	>21/19/16	24/23/16	▲ 23/21/17	▲ 24/22/15

OIL ANALYSIS REPORT

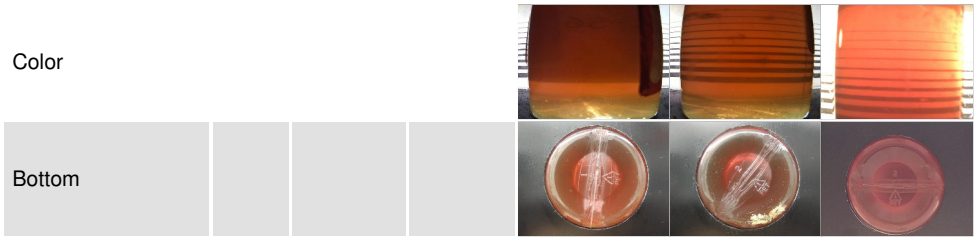


FLUID DEGRADATION		method	limit/base	current	history 1	history 2
Acid Number (AN)	mg KOH/g	ASTM D974*	1.5	1.77	2.58	7.71

VISUAL		method	limit/base	current	history 1	history 2
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	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*	>0.2	NEG	NEG	NEG
Free Water	scalar	Visual*		NEG	NEG	NEG

FLUID PROPERTIES		method	limit/base	current	history 1	history 2
Visc @ 40°C	cSt	ASTM D7279(m)	140.3	143	143	154
Visc @ 100°C	cSt	ASTM D7279(m)	15.05	14.9	14.8	15.1
Viscosity Index (VI)	Scale	ASTM D2270*	109	104	103	98

SAMPLE IMAGES



Color

Bottom



ISO 17025:2017
Accredited
Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PC0052193
Lab Number : **02568334**
Unique Number : 5605380
Test Package : MAR 2 (Additional Tests: KV100, PQ, PrtCount, TAN Man, VI)

Received : 06 Jul 2023
Diagnosed : 07 Jul 2023
Diagnostician : Kevin Marson

*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.*

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