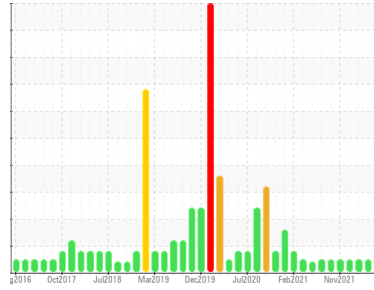


Area
Cranes [450207985]
Machine Id
Crane - Fwd Luffing Winch Gearbox (S/N Sample Tag MA-04003-S6)
Component
Gearbox
Fluid
PETRO CANADA GEARLUBE TOS 80W90 (40 LTR)



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	history1	history2
Sample Number	Client Info	PC0011837	PC	PC0052000
Sample Date	Client Info	04 Oct 2023	13 Aug 2023	02 May 2023
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*	0	0	0	
Iron	ppm	ASTM D5185(m) >150	3	2	8
Chromium	ppm	ASTM D5185(m) >10	0	0	0
Nickel	ppm	ASTM D5185(m) >10	<1	0	<1
Titanium	ppm	ASTM D5185(m)	0	0	0
Silver	ppm	ASTM D5185(m)	<1	<1	0
Aluminum	ppm	ASTM D5185(m) >5	0	0	<1
Lead	ppm	ASTM D5185(m) >65	<1	0	0
Copper	ppm	ASTM D5185(m) >80	<1	<1	<1
Tin	ppm	ASTM D5185(m) >8	0	0	0
Antimony	ppm	ASTM D5185(m) >5	0	0	<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) 240	251	249	238
Barium	ppm	ASTM D5185(m) 1	<1	0	0
Molybdenum	ppm	ASTM D5185(m) 0.0	0	0	0
Manganese	ppm	ASTM D5185(m)	0	0	<1
Magnesium	ppm	ASTM D5185(m) 2	1	1	1
Calcium	ppm	ASTM D5185(m) 6	2	2	2
Phosphorus	ppm	ASTM D5185(m) 1000	925	1069	1045
Zinc	ppm	ASTM D5185(m) 3	18	8	33
Sulfur	ppm	ASTM D5185(m) 19400	16487	17681	17780
Lithium	ppm	ASTM D5185(m)	<1	<1	<1

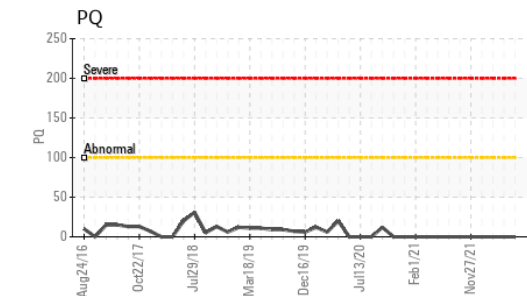
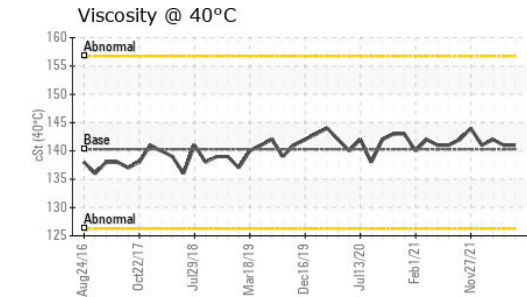
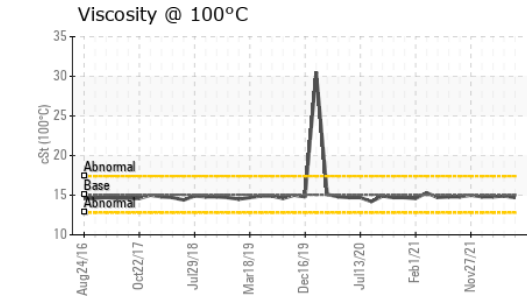
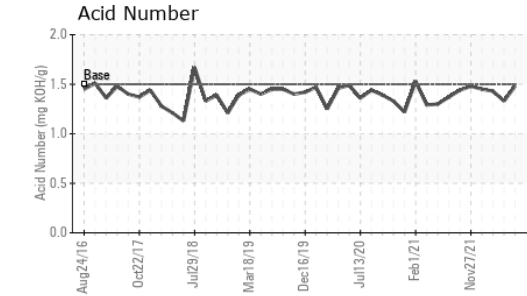
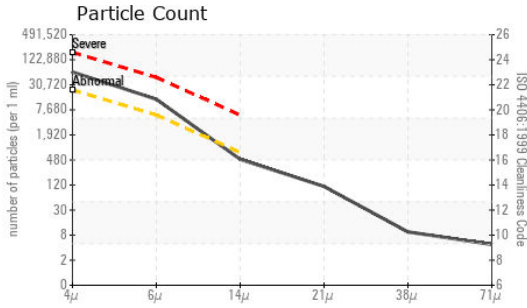
CONTAMINANTS

method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185(m) >20	2	1	3
Sodium	ppm	ASTM D5185(m)	<1	<1	<1
Potassium	ppm	ASTM D5185(m) >20	0	<1	<1

FLUID CLEANLINESS

method	limit/base	current	history1	history2	
Particles >4µm	ASTM D7647	>20000	53888	61634	35442
Particles >6µm	ASTM D7647	>5000	12013	12038	6038
Particles >14µm	ASTM D7647	>640	437	304	175
Particles >21µm	ASTM D7647	>160	98	52	41
Particles >38µm	ASTM D7647	>40	8	1	4
Particles >71µm	ASTM D7647	>10	4	0	2
Oil Cleanliness	ISO 4406 (c)	>21/19/16	23/21/16	23/21/15	22/20/15

OIL ANALYSIS REPORT

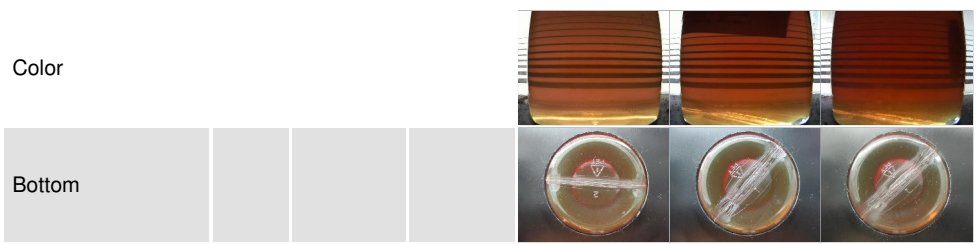


FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	1.5	1.48	1.33	1.43

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	VLITE	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*	>0.2	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)	140.3	141	141	142
Visc @ 100°C	cSt	ASTM D7279(m)	15.05	14.7	14.9	14.8
Viscosity Index (VI)	Scale	ASTM D2270*	109	103	106	104

SAMPLE IMAGES



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PC0011837
Lab Number : **02590129**
Unique Number : 5659195
Test Package : MAR 2 (Additional Tests: KV100, PQ, PrtCount, TAN Man, VI)

Received : 18 Oct 2023
Diagnosed : 19 Oct 2023
Diagnostician : Kevin Marson

Suncor - Terra Nova Projects
 Scotia Centre, 235 Water Strret
 St. John's, NL
 CA A1C 1B6
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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.