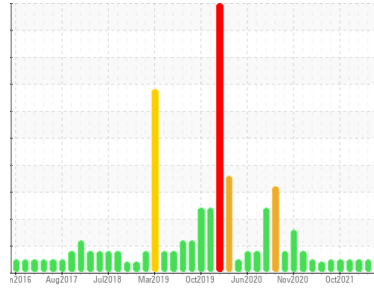


Area  
**Cranes [450185704]**  
Machine Id  
**Crane - Fwd Luffing Winch Gearbox (S/N Sample Tag MA-04003-S6)**  
Component  
**Gearbox**  
Fluid  
**PETRO CANADA GEARLUBE TOS 80W90 (40 LTR)**



**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	<b>PC</b>	PC0052000	PC0040133
Sample Date	Client Info	<b>13 Aug 2023</b>	02 May 2023	29 Nov 2021
Machine Age	hrs	Client Info	<b>0</b>	0
Oil Age	hrs	Client Info	<b>0</b>	0
Oil Changed	Client Info	<b>N/A</b>	N/A	N/A
Sample Status		<b>NORMAL</b>	NORMAL	NORMAL

**WEAR METALS** method limit/base current history1 history2

PQ	ASTM D8184*		<b>0</b>	0	0
Iron	ppm	ASTM D5185(m) >150	<b>2</b>	8	4
Chromium	ppm	ASTM D5185(m) >10	<b>0</b>	0	0
Nickel	ppm	ASTM D5185(m) >10	<b>0</b>	<1	<1
Titanium	ppm	ASTM D5185(m)	<b>0</b>	0	0
Silver	ppm	ASTM D5185(m)	<b>&lt;1</b>	0	<1
Aluminum	ppm	ASTM D5185(m) >5	<b>0</b>	<1	0
Lead	ppm	ASTM D5185(m) >65	<b>0</b>	0	<1
Copper	ppm	ASTM D5185(m) >80	<b>&lt;1</b>	<1	1
Tin	ppm	ASTM D5185(m) >8	<b>0</b>	0	0
Antimony	ppm	ASTM D5185(m) >5	<b>0</b>	<1	0
Vanadium	ppm	ASTM D5185(m)	<b>0</b>	0	0
Beryllium	ppm	ASTM D5185(m)	<b>0</b>	0	0
Cadmium	ppm	ASTM D5185(m)	<b>0</b>	0	0

**ADDITIVES** method limit/base current history1 history2

Boron	ppm	ASTM D5185(m) 240	<b>249</b>	238	223
Barium	ppm	ASTM D5185(m) 1	<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185(m) 0.0	<b>0</b>	0	0
Manganese	ppm	ASTM D5185(m)	<b>0</b>	<1	<1
Magnesium	ppm	ASTM D5185(m) 2	<b>1</b>	1	1
Calcium	ppm	ASTM D5185(m) 6	<b>2</b>	2	3
Phosphorus	ppm	ASTM D5185(m) 1000	<b>1069</b>	1045	948
Zinc	ppm	ASTM D5185(m) 3	<b>8</b>	33	31
Sulfur	ppm	ASTM D5185(m) 19400	<b>17681</b>	17780	16548
Lithium	ppm	ASTM D5185(m)	<b>&lt;1</b>	<1	<1

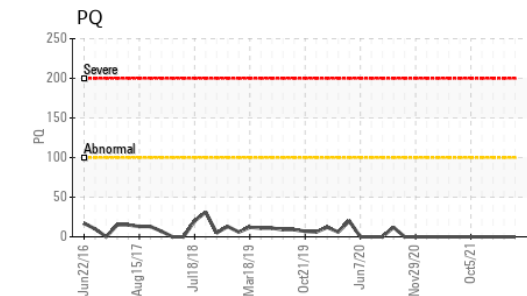
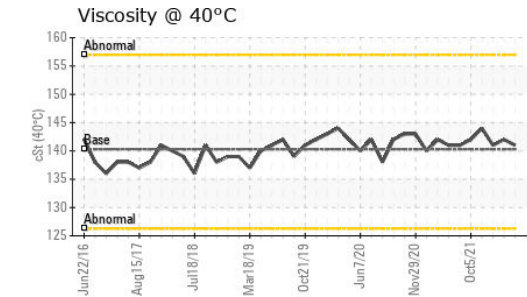
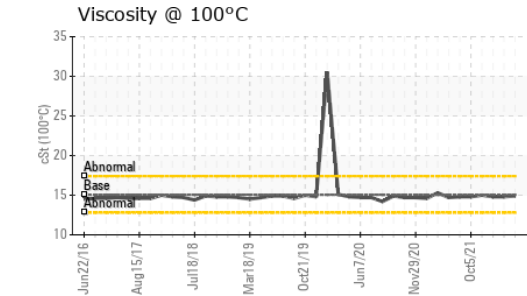
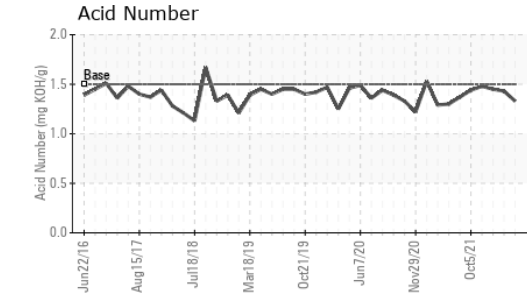
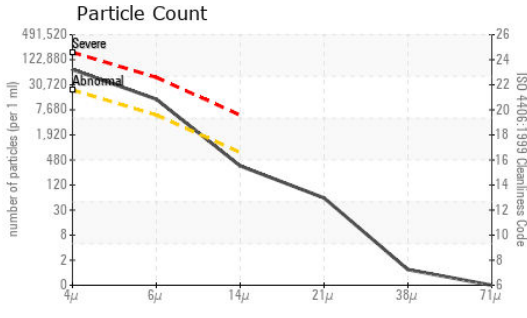
**CONTAMINANTS** method limit/base current history1 history2

Silicon	ppm	ASTM D5185(m) >20	<b>1</b>	3	4
Sodium	ppm	ASTM D5185(m)	<b>&lt;1</b>	<1	<1
Potassium	ppm	ASTM D5185(m) >20	<b>&lt;1</b>	<1	1

**FLUID CLEANLINESS** method limit/base current history1 history2

Particles >4µm	ASTM D7647	>20000	<b>61634</b>	35442	25192
Particles >6µm	ASTM D7647	>5000	<b>12038</b>	6038	3239
Particles >14µm	ASTM D7647	>640	<b>304</b>	175	51
Particles >21µm	ASTM D7647	>160	<b>52</b>	41	6
Particles >38µm	ASTM D7647	>40	<b>1</b>	4	0
Particles >71µm	ASTM D7647	>10	<b>0</b>	2	0
Oil Cleanliness	ISO 4406 (c)	>21/19/16	<b>23/21/15</b>	22/20/15	22/19/13

# OIL ANALYSIS REPORT

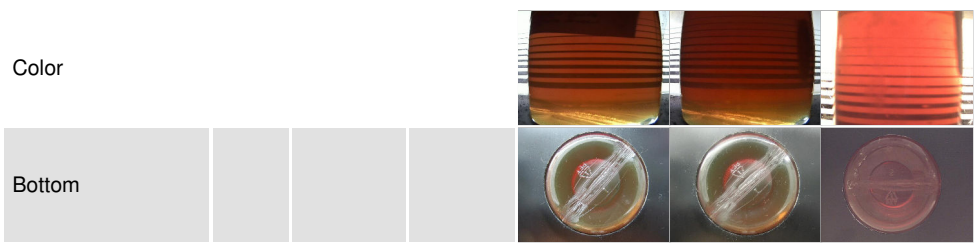


FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	1.5	<b>1.33</b>	1.43	1.45

VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	Visual*	NONE	<b>NONE</b>	NONE	NONE
Precipitate	scalar	Visual*	NONE	<b>NONE</b>	NONE	NONE
Silt	scalar	Visual*	NONE	<b>VLITE</b>	NONE	NONE
Debris	scalar	Visual*	NONE	<b>NONE</b>	NONE	NONE
Sand/Dirt	scalar	Visual*	NONE	<b>NONE</b>	NONE	NONE
Appearance	scalar	Visual*	NORML	<b>NORML</b>	NORML	NORML
Odor	scalar	Visual*	NORML	<b>NORML</b>	NORML	NORML
Emulsified Water	scalar	Visual*	>0.2	<b>NEG</b>	NEG	NEG
Free Water	scalar	Visual*		<b>NEG</b>	NEG	NEG

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	140.3	<b>141</b>	142	141
Visc @ 100°C	cSt	ASTM D7279(m)	15.05	<b>14.9</b>	14.8	14.8
Viscosity Index (VI)	Scale	ASTM D2270*	109	<b>106</b>	104	104

## SAMPLE IMAGES



Color

Bottom



ISO 17025:2017  
Accredited  
Laboratory

**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9  
**Sample No.** : PC  
**Lab Number** : **02582281** **Received** : 13 Sep 2023  
**Unique Number** : 5643346 **Diagnosed** : 15 Sep 2023  
**Test Package** : MAR 2 ( Additional Tests: KV100, PQ, PrtCount, VI ) **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.

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