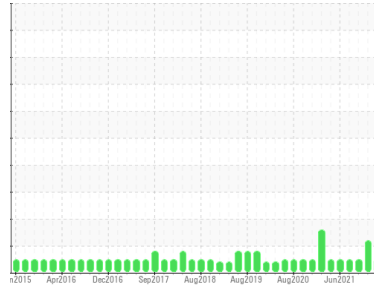


Area
Cranes [450159533]
Machine Id
Crane - Mid Ship Slewing Gearbox #1 (S/N Sample Tag MA-04002-S7)
Component
Gearbox
Fluid
PETRO CANADA GEARLUBE TOS 80W90 (33 LTR)



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	PC0052200	PC0052678	PC416837
Sample Date	Client Info	14 Jun 2023	02 May 2023	05 Oct 2021
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	ABNORMAL	NORMAL

WEAR METALS method limit/base current history 1 history 2

PQ	ASTM D8184*		0	0	0
Iron	ppm	ASTM D5185(m) >150	2	2	<1
Chromium	ppm	ASTM D5185(m) >10	0	0	0
Nickel	ppm	ASTM D5185(m) >10	0	0	<1
Titanium	ppm	ASTM D5185(m)	0	0	0
Silver	ppm	ASTM D5185(m)	<1	0	<1
Aluminum	ppm	ASTM D5185(m) >5	<1	<1	0
Lead	ppm	ASTM D5185(m) >65	0	<1	0
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	252	217	244
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	<1	0
Magnesium	ppm	ASTM D5185(m) 2	1	<1	1
Calcium	ppm	ASTM D5185(m) 6	26	44	10
Phosphorus	ppm	ASTM D5185(m) 1000	1035	1030	969
Zinc	ppm	ASTM D5185(m) 3	11	34	8
Sulfur	ppm	ASTM D5185(m) 19400	21560	22983	17897
Lithium	ppm	ASTM D5185(m)	<1	<1	<1

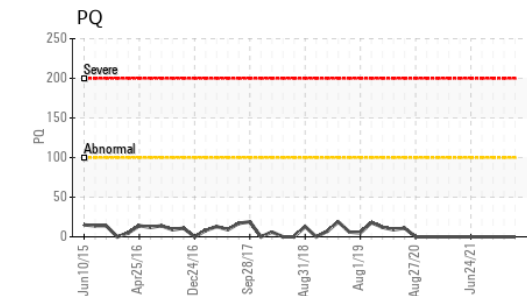
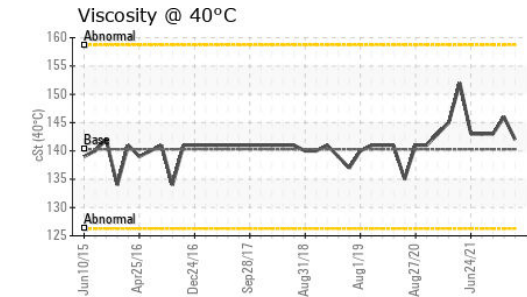
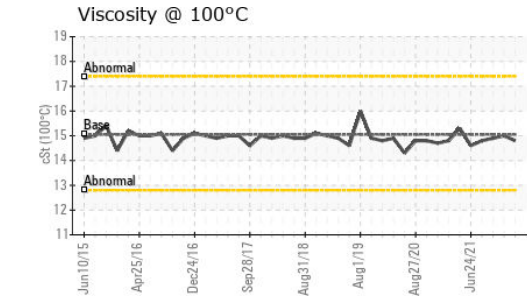
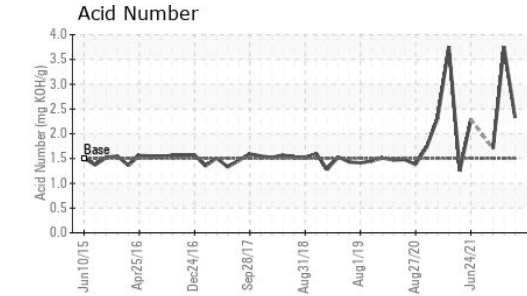
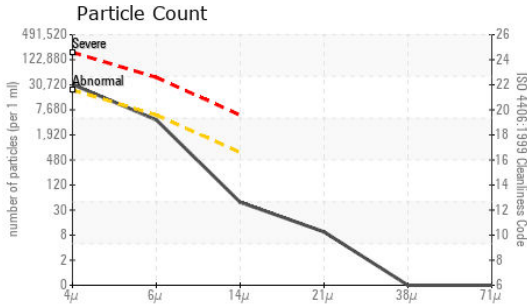
CONTAMINANTS method limit/base current history 1 history 2

Silicon	ppm	ASTM D5185(m) >20	3	3	4
Sodium	ppm	ASTM D5185(m)	<1	<1	<1
Potassium	ppm	ASTM D5185(m) >20	<1	<1	<1

FLUID CLEANLINESS method limit/base current history 1 history 2

Particles >4µm	ASTM D7647	>20000	27236	5338	81982
Particles >6µm	ASTM D7647	>5000	3855	957	22057
Particles >14µm	ASTM D7647	>640	41	31	37
Particles >21µm	ASTM D7647	>160	8	7	6
Particles >38µm	ASTM D7647	>40	0	1	0
Particles >71µm	ASTM D7647	>10	0	0	0
Oil Cleanliness	ISO 4406 (c)	>21/19/16	22/19/13	20/17/12	24/22/12

OIL ANALYSIS REPORT



ISO 17025:2017
Accredited
Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PC0052200 **Received** : 06 Jul 2023
Lab Number : **02568333** **Diagnosed** : 07 Jul 2023
Unique Number : 5605379 **Diagnostician** : Kevin Marson
Test Package : MAR 2 (Additional Tests: KV100, PQ, PrtCount, TAN Man, VI)

*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.*

FLUID DEGRADATION		method	limit/base	current	history 1	history 2
Acid Number (AN)	mg KOH/g	ASTM D974*	1.5	2.33	▲ 3.75	1.70

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	NONE	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	142	146	143
Visc @ 100°C	cSt	ASTM D7279(m)	15.05	14.8	15.0	14.9
Viscosity Index (VI)	Scale	ASTM D2270*	109	104	102	104

SAMPLE IMAGES		method	limit/base	current	history 1	history 2
Color						
Bottom						