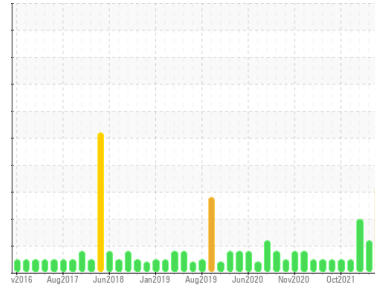


# PROBLEM SUMMARY

Sample Rating Trend



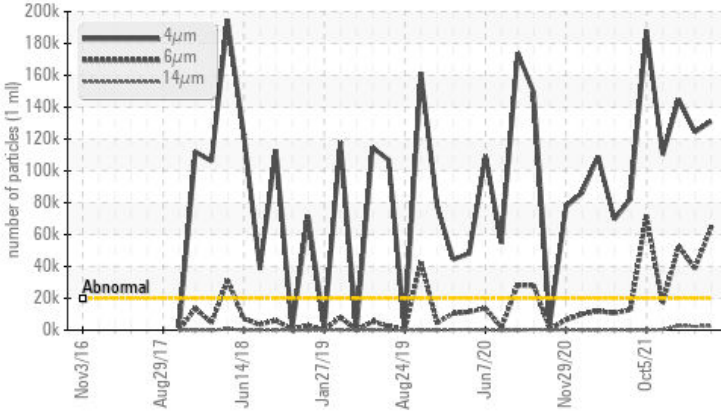
## ADDITIVES



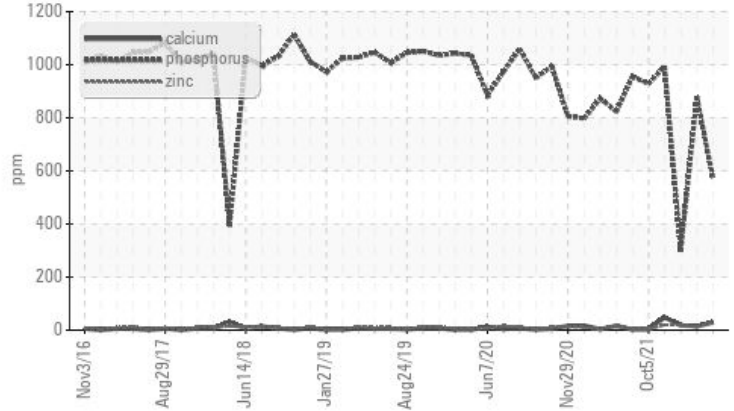
Area  
**Cranes [450185704]**  
Machine Id  
**Crane - Fwd Slewing Gearbox #1 (S/N Sample Tag MA-04003-S7)**  
Component  
**Gearbox**  
Fluid  
**PETRO CANADA GEARLUBE TOS 80W90 (33 LTR)**

## COMPONENT CONDITION SUMMARY

▲ Particle Trend



▲ Additives



## RECOMMENDATION

We recommend you service the filters on this component. Confirm the source of the lubricant being utilized for top-up/fill. We recommend an early resample to monitor this condition.

## PROBLEMATIC TEST RESULTS

Sample Status				<b>ABNORMAL</b>	ABNORMAL	ABNORMAL
Boron	ppm	ASTM D5185(m)	240	▲ 80	179	▲ 14
Calcium	ppm	ASTM D5185(m)	6	▲ 29	15	18
Phosphorus	ppm	ASTM D5185(m)	1000	▲ 573	879	▲ 299
Zinc	ppm	ASTM D5185(m)	3	▲ 29	12	20
Sulfur	ppm	ASTM D5185(m)	19400	▲ 12306	20330	▲ 10141
Particles >14µm		ASTM D7647	>640	▲ 2443	▲ 2366	▲ 2611
Particles >21µm		ASTM D7647	>160	▲ 273	▲ 442	▲ 476
Oil Cleanliness		ISO 4406 (c)	>21/19/16	▲ 24/23/18	▲ 24/22/18	▲ 24/23/19

Customer Id: TERHAM  
Sample No.: PC  
Lab Number: 02582279  
Test Package: MAR 2



To manage this report scan the QR code

To discuss the diagnosis or test data:  
Kevin Marson +1 (289)291-4644 x4644  
[Kevin.Marson@wearcheck.com](mailto:Kevin.Marson@wearcheck.com)

To change component or sample information:  
Gloria Gonzalez +1 (289)291-4643 x4643  
[gloria.gonzalez@wearcheck.com](mailto:gloria.gonzalez@wearcheck.com)

## RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Change Filter	---	---	?	We recommend you service the filters on this component.
Resample	---	---	?	We recommend an early resample to monitor this condition.
Check Fluid Source	---	---	?	Confirm the source of the lubricant being utilized for top-up/fill.

## HISTORICAL DIAGNOSIS

### 02 May 2023 Diag: Kevin Marson

ISO



We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. We recommend an early resample to monitor this condition. All component wear rates are normal. There is a moderate amount of particulates (2 to 100 microns in size) present in the oil. The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

view report



### 29 Nov 2021 Diag: Kevin Marson

ADDITIVES



We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. Confirm the source of the lubricant being utilized for top-up/fill. We recommend an early resample to monitor this condition. The fluid was specified as PETRO CANADA GEARLUBE TOS 80W90, however, a fluid match indicates that this fluid is ISO 220 Gear Oil. Please confirm the oil type and grade on your next sample. All component wear rates are normal. Particles >14µm are abnormally high. Particles >21µm are abnormally high. Additive levels indicate the addition of a different brand, or type of oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report



### 27 Nov 2021 Diag: Kevin Marson

NORMAL

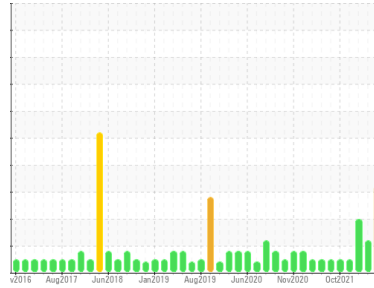


Confirm the source of the lubricant being utilized for top-up/fill. Resample at the next service interval to monitor. All component wear rates are normal. The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable. Additive levels indicate the addition of a different brand, or type of oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report



Area  
**Cranes [450185704]**  
 Machine Id  
**Crane - Fwd Slewing Gearbox #1 (S/N Sample Tag MA-04003-S7)**  
 Component  
**Gearbox**  
 Fluid  
**PETRO CANADA GEARLUBE TOS 80W90 (33 LTR)**



**DIAGNOSIS**

**Recommendation**  
 We recommend you service the filters on this component. Confirm the source of the lubricant being utilized for top-up/fill. We recommend an early resample to monitor this condition.

**Wear**  
 All component wear rates are normal.

**Contamination**  
 There is a moderate amount of silt (particulates < 14 microns in size) present in the oil.

**Fluid Condition**  
 Additive levels indicate the addition of a different brand, or type of oil. The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

**SAMPLE INFORMATION**

method	limit/base	current	history1	history2
Sample Number	Client Info	<b>PC</b>	PC0053015	PC0040132
Sample Date	Client Info	<b>13 Aug 2023</b>	02 May 2023	29 Nov 2021
Machine Age	hrs	<b>0</b>	0	0
Oil Age	hrs	<b>0</b>	0	0
Oil Changed	Client Info	<b>N/A</b>	N/A	N/A
Sample Status		<b>ABNORMAL</b>	ABNORMAL	ABNORMAL

**WEAR METALS**

method	limit/base	current	history1	history2
PQ	ASTM D8184*	<b>0</b>	0	0
Iron	ppm ASTM D5185(m) >150	<b>17</b>	13	9
Chromium	ppm ASTM D5185(m) >10	<b>&lt;1</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>0</b>	0	0
Aluminum	ppm ASTM D5185(m) >5	<b>&lt;1</b>	<1	<1
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>	<1	0
Antimony	ppm ASTM D5185(m) >5	<b>0</b>	<1	<1
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>▲ 80</b>	179	<b>▲ 14</b>
Barium	ppm ASTM D5185(m) 1	<b>&lt;1</b>	0	<1
Molybdenum	ppm ASTM D5185(m) 0.0	<b>0</b>	0	0
Manganese	ppm ASTM D5185(m)	<b>&lt;1</b>	<1	<1
Magnesium	ppm ASTM D5185(m) 2	<b>&lt;1</b>	<1	0
Calcium	ppm ASTM D5185(m) 6	<b>▲ 29</b>	15	18
Phosphorus	ppm ASTM D5185(m) 1000	<b>▲ 573</b>	879	<b>▲ 299</b>
Zinc	ppm ASTM D5185(m) 3	<b>▲ 29</b>	12	20
Sulfur	ppm ASTM D5185(m) 19400	<b>▲ 12306</b>	20330	<b>▲ 10141</b>
Lithium	ppm ASTM D5185(m)	<b>&lt;1</b>	<1	<1

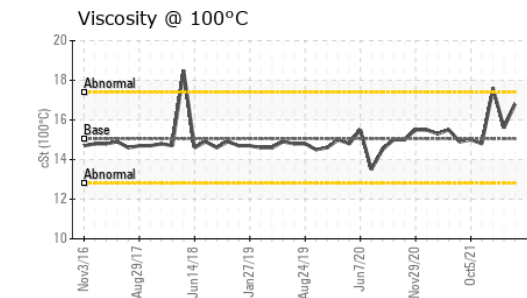
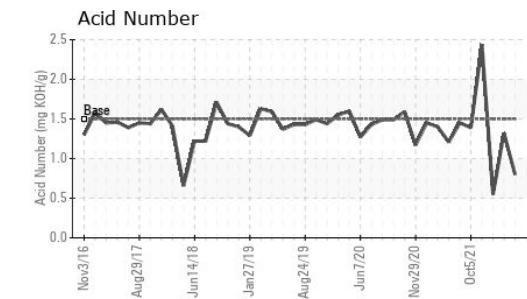
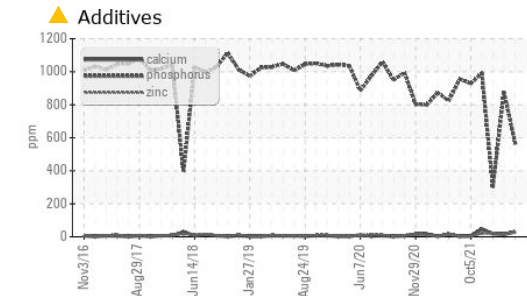
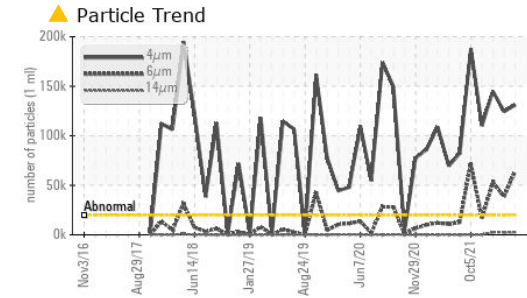
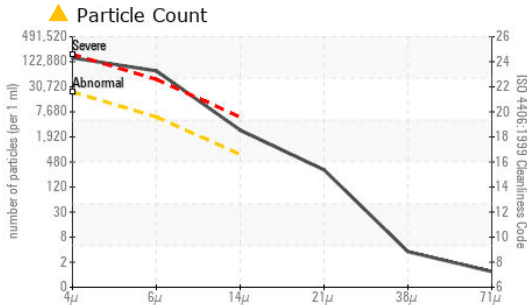
**CONTAMINANTS**

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

**FLUID CLEANLINESS**

method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647 >20000	<b>131043</b>	124316	144839
Particles >6µm	ASTM D7647 >5000	<b>64118</b>	38555	52823
Particles >14µm	ASTM D7647 >640	<b>▲ 2443</b>	<b>▲ 2366</b>	<b>▲ 2611</b>
Particles >21µm	ASTM D7647 >160	<b>▲ 273</b>	<b>▲ 442</b>	<b>▲ 476</b>
Particles >38µm	ASTM D7647 >40	<b>3</b>	1	7
Particles >71µm	ASTM D7647 >10	<b>1</b>	0	0
Oil Cleanliness	ISO 4406 (c) >21/19/16	<b>▲ 24/23/18</b>	<b>▲ 24/22/18</b>	<b>▲ 24/23/19</b>

# OIL ANALYSIS REPORT



ISO 17025:2017  
Accredited  
Laboratory

**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9  
**Sample No.** : PC  
**Lab Number** : 02582279  
**Unique Number** : 5643344  
**Test Package** : MAR 2 ( Additional Tests: KV100, PQ, PrtCount, 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	history1	history2	
Acid Number (AN) mg KOH/g	ASTM D974*	1.5	<b>0.80</b>	1.32	0.55

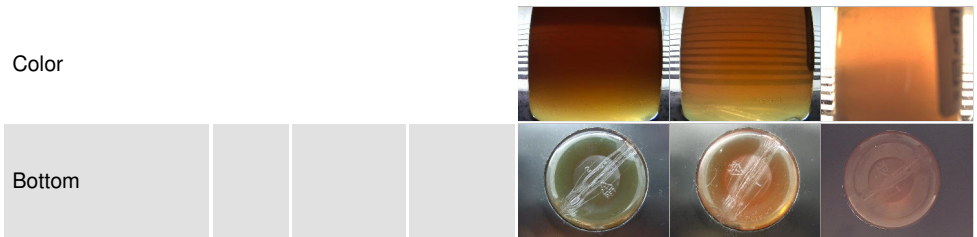
## VISUAL

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>NONE</b>	NONE	NONE
Debris	scalar Visual*	NONE	<b>VLITE</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>180</b>	152	205
Visc @ 100°C	cSt ASTM D7279(m)	15.05	<b>16.8</b>	15.6	17.6
Viscosity Index (VI)	Scale ASTM D2270*	109	<b>98</b>	105	92

## SAMPLE IMAGES



**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