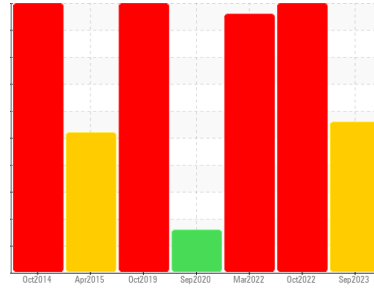


# OIL ANALYSIS REPORT

Sample Rating Trend



Area  
**KEMP QUARRIES / MUSKOGEE SAND [65023]**  
 Machine Id  
**TTH015**  
 Component  
**Front Left Final Drive**  
 Fluid  
**PETRO CANADA PRODURO TO-4 SAE 50 (--- GAL)**

## DIAGNOSIS

**Recommendation**  
 We advise that you check all areas where dirt can enter the system. We recommend that you drain the oil from the component if this has not already been done. We recommend an early resample to monitor this condition. ( Customer Sample Comment: PM-2 sampled fluid. Left oil had minor grayish tints. Oil was just changed due to turret repairs. )

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

**Contamination**  
 Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress.

**Fluid Condition**  
 The oil is no longer serviceable due to the presence of contaminants.

## SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	<b>PCA0037709</b>	PCA0062260	PCA0034598
Sample Date	Client Info	<b>06 Sep 2023</b>	14 Oct 2022	15 Mar 2022
Machine Age	hrs	<b>139430</b>	17730	17595
Oil Age	hrs	<b>121700</b>	135	200
Oil Changed	Client Info	<b>N/A</b>	Changed	Changed
Sample Status		<b>SEVERE</b>	SEVERE	SEVERE

## WEAR METALS

method	limit/base	current	history1	history2	
Iron	ppm	ASTM D5185m >750	<b>378</b>	▲ 1041	407
Chromium	ppm	ASTM D5185m >9	<b>4</b>	7	6
Nickel	ppm	ASTM D5185m >10	<b>&lt;1</b>	4	2
Titanium	ppm	ASTM D5185m	<b>1</b>	6	2
Silver	ppm	ASTM D5185m	<b>&lt;1</b>	0	2
Aluminum	ppm	ASTM D5185m >40	▲ <b>24</b>	● 121	▲ 33
Lead	ppm	ASTM D5185m >15	<b>0</b>	1	3
Copper	ppm	ASTM D5185m >40	<b>&lt;1</b>	2	3
Tin	ppm	ASTM D5185m >10	<b>&lt;1</b>	<1	2
Antimony	ppm	ASTM D5185m >5	<b>---</b>	---	---
Vanadium	ppm	ASTM D5185m	<b>&lt;1</b>	<1	<1
Cadmium	ppm	ASTM D5185m	<b>&lt;1</b>	<1	2

## ADDITIVES

method	limit/base	current	history1	history2	
Boron	ppm	ASTM D5185m 2	<b>5</b>	5	43
Barium	ppm	ASTM D5185m 0	<b>1</b>	2	0
Molybdenum	ppm	ASTM D5185m 0	<b>0</b>	2	1
Manganese	ppm	ASTM D5185m 0	<b>3</b>	8	4
Magnesium	ppm	ASTM D5185m 9	<b>17</b>	22	19
Calcium	ppm	ASTM D5185m 3114	<b>2419</b>	2506	2131
Phosphorus	ppm	ASTM D5185m 1099	<b>885</b>	766	960
Zinc	ppm	ASTM D5185m 1245	<b>1100</b>	952	1141
Sulfur	ppm	ASTM D5185m 7086	<b>8099</b>	7789	5060

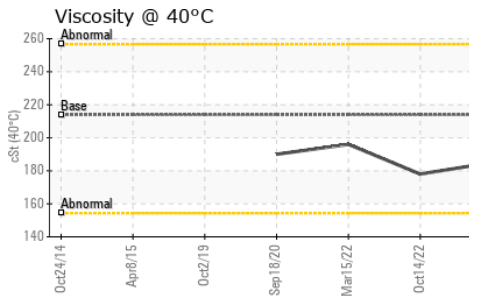
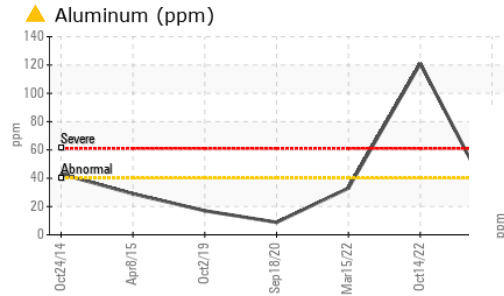
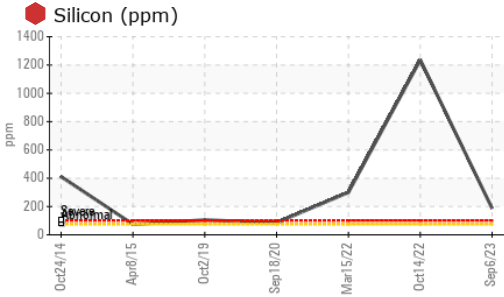
## CONTAMINANTS

method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185m >75	● <b>187</b>	● 1236	● 300
Sodium	ppm	ASTM D5185m >51	<b>4</b>	24	11
Potassium	ppm	ASTM D5185m >20	<b>9</b>	70	25

## VISUAL

method	limit/base	current	history1	history2	
White Metal	scalar	*Visual NONE	<b>NONE</b>	LIGHT	LIGHT
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>NONE</b>	NONE	LIGHT
Sand/Dirt	scalar	*Visual NONE	<b>NONE</b>	NONE	NONE
Appearance	scalar	*Visual NORML	<b>NORML</b>	NORML	▲ HAZY
Odor	scalar	*Visual NORML	<b>NORML</b>	NORML	NORML
Emulsified Water	scalar	*Visual >0.075	<b>NEG</b>	▲ 0.2%	● 0.2%
Free Water	scalar	*Visual	<b>NEG</b>	NEG	NEG

# OIL ANALYSIS REPORT

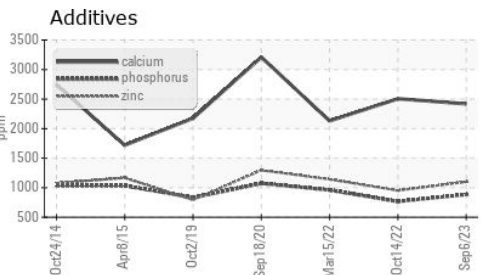
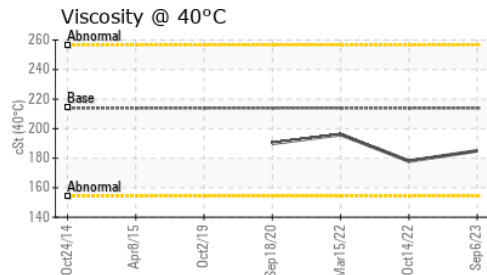
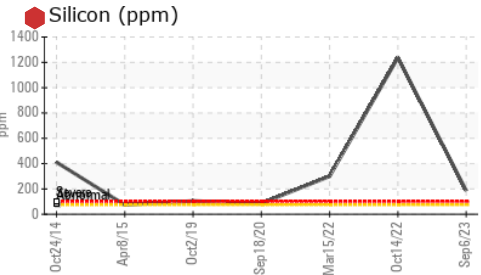
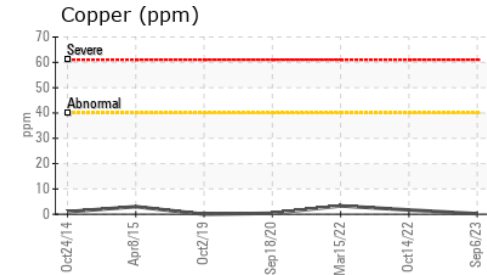
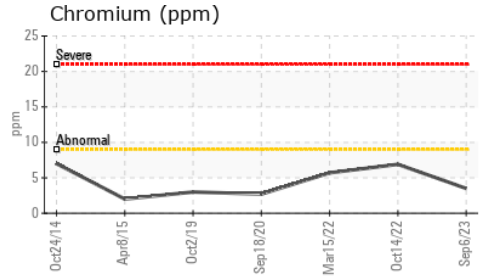
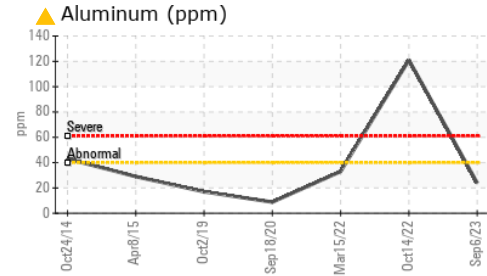
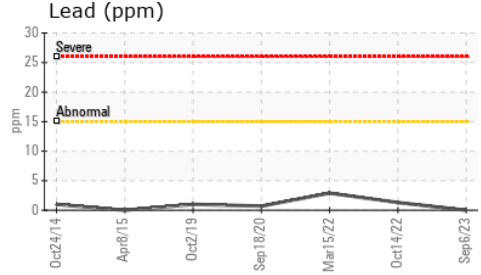
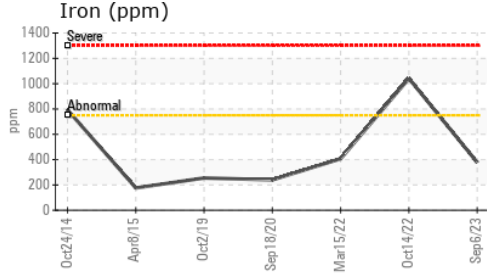


FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	213.9	<b>185</b>	178	196

SAMPLE IMAGES		method	limit/base	current	history1	history2
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Color				no image	no image	no image
Bottom				no image	no image	no image

## GRAPHS



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : PCA0037709  
**Lab Number** : 05952306  
**Unique Number** : 10648265  
**Test Package** : MOB 1

**Kemp Quarries - Muskogee Sand**  
 3395 W 50th St N  
 Porter, OK  
 US 74454

To discuss this sample report, contact Customer Service at 1-800-237-1369.

\* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

muskogee@muskogeessand.com

T:  
F: