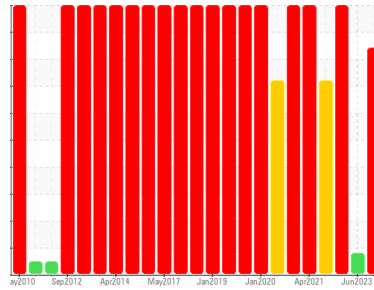


# OIL ANALYSIS REPORT



Area  
**KEMP QUARRIES / MUSKOGEE SAND [65225]**  
Machine Id  
**WL015**  
Component  
**Front Left Final Drive**  
Fluid  
**PETRO CANADA PRODURO TO-4 SAE 50 (--- GAL)**

Sample Rating Trend



## 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 advise that you inspect for the source(s) of wear. We recommend an early resample to monitor this condition. ( Customer Sample Comment: PM-2 sampled fluid )

**Wear**  
Gear wear is indicated.

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

**Fluid Condition**  
The oil is no longer serviceable as a result of the abnormal and/or severe wear.

## SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	<b>PCA0087058</b>	PCA0087114	PCA0070543
Sample Date	Client Info	<b>25 Oct 2023</b>	03 Jun 2023	16 Feb 2023
Machine Age	hrs	<b>2234</b>	1895	1210
Oil Age	hrs	<b>2234</b>	685	2000
Oil Changed	Client Info	<b>N/A</b>	Not Changd	Changed
Sample Status		<b>SEVERE</b>	ABNORMAL	SEVERE

## WEAR METALS

method	limit/base	current	history1	history2	
Iron	ppm	ASTM D5185m >800	<b>2039</b>	1011	1526
Chromium	ppm	ASTM D5185m >10	<b>6</b>	3	7
Nickel	ppm	ASTM D5185m >5	<b>3</b>	1	3
Titanium	ppm	ASTM D5185m >15	<b>2</b>	<1	4
Silver	ppm	ASTM D5185m >2	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m >75	<b>25</b>	14	68
Lead	ppm	ASTM D5185m >10	<b>2</b>	2	6
Copper	ppm	ASTM D5185m >75	<b>40</b>	27	108
Tin	ppm	ASTM D5185m >8	<b>2</b>	0	5
Antimony	ppm	ASTM D5185m >50	<b>---</b>	---	---
Vanadium	ppm	ASTM D5185m	<b>0</b>	0	<1
Cadmium	ppm	ASTM D5185m	<b>&lt;1</b>	0	<1

## ADDITIVES

method	limit/base	current	history1	history2	
Boron	ppm	ASTM D5185m 2	<b>&lt;1</b>	0	5
Barium	ppm	ASTM D5185m 0	<b>19</b>	0	0
Molybdenum	ppm	ASTM D5185m 0	<b>2</b>	1	4
Manganese	ppm	ASTM D5185m 0	<b>16</b>	8	17
Magnesium	ppm	ASTM D5185m 9	<b>20</b>	15	30
Calcium	ppm	ASTM D5185m 3114	<b>2803</b>	2751	2504
Phosphorus	ppm	ASTM D5185m 1099	<b>926</b>	924	1001
Zinc	ppm	ASTM D5185m 1245	<b>1076</b>	1059	1129
Sulfur	ppm	ASTM D5185m 7086	<b>6264</b>	4810	8016

## CONTAMINANTS

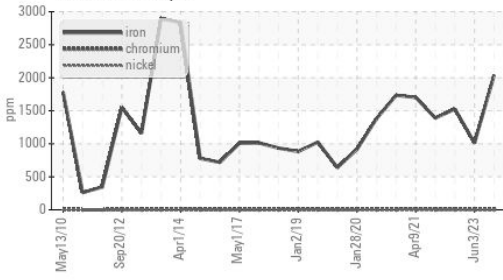
method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185m >400	<b>243</b>	123	558
Sodium	ppm	ASTM D5185m	<b>6</b>	0	15
Potassium	ppm	ASTM D5185m >20	<b>8</b>	5	26

## VISUAL

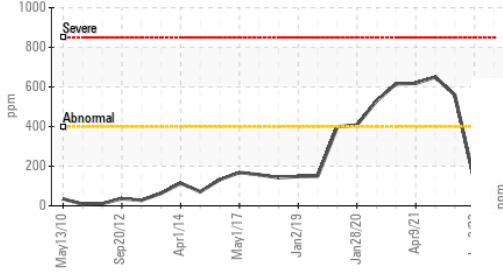
method	limit/base	current	history1	history2	
White Metal	scalar	*Visual NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual NONE	<b>NONE</b>	NONE	NONE
Precipitate	scalar	*Visual NONE	<b>NONE</b>	NONE	NONE
Silt	scalar	*Visual NONE	<b>NONE</b>	NONE	NONE
Debris	scalar	*Visual NONE	<b>NONE</b>	NONE	NONE
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

# OIL ANALYSIS REPORT

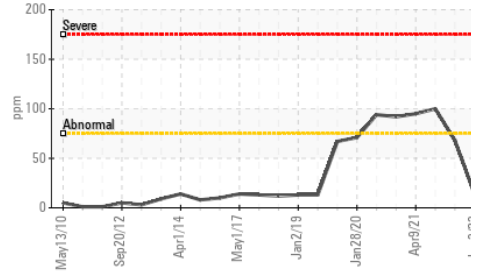
## Ferrous Alloys



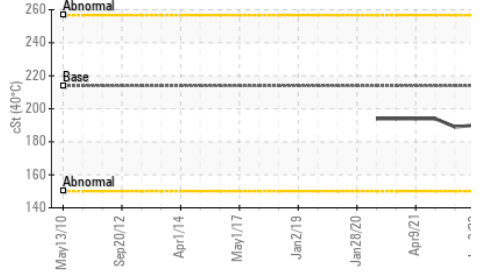
## Silicon (ppm)



## Aluminum (ppm)



## Viscosity @ 40°C



## FLUID PROPERTIES

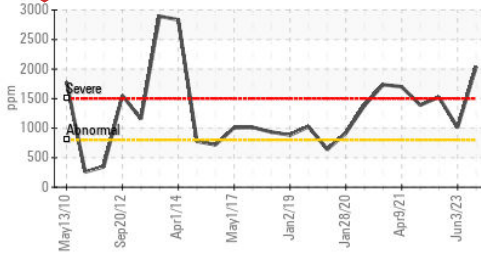
method	limit/base	current	history1	history2
Visc @ 40°C	cSt ASTM D445	213.9	192	190

## SAMPLE IMAGES

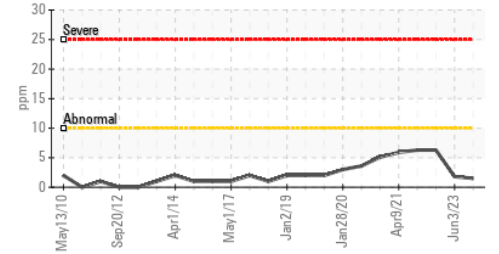
method	limit/base	current	history1	history2
Color			no image	no image
Bottom			no image	no image

## GRAPHS

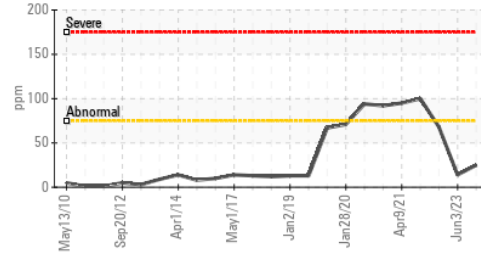
### Iron (ppm)



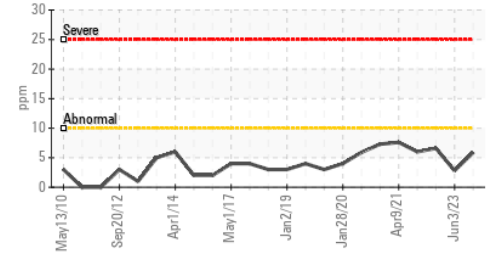
### Lead (ppm)



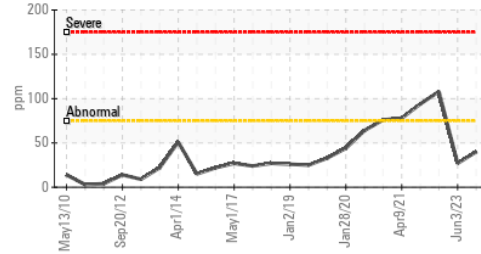
### Aluminum (ppm)



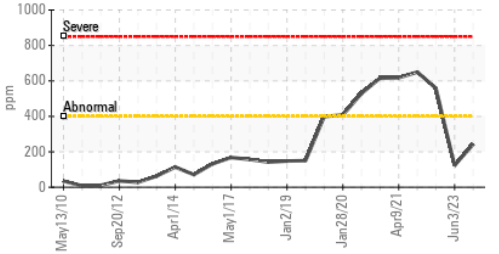
### Chromium (ppm)



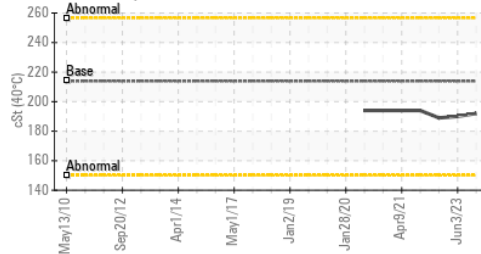
### Copper (ppm)



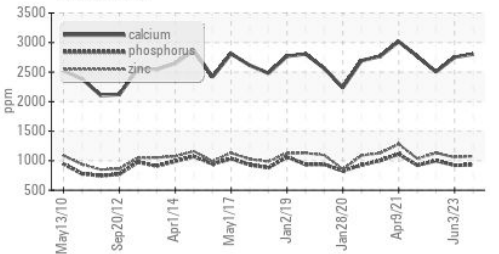
### Silicon (ppm)



### Viscosity @ 40°C



### Additives



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : PCA0087058  
**Lab Number** : 05993862  
**Unique Number** : 10722222  
**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)

Contact: muskogee@muskogeessand.com

T:  
F: