360 OIL DIAGNOSTICS — TECHNICAL EXPERTISE
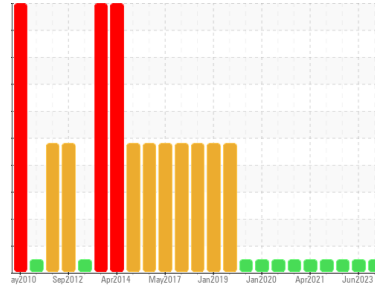
Area
KEMP QUARRIES / MUSKOGEE SAND [65225]
Machine Id
WL015
Component
Rear Left Final Drive
Fluid
PETRO CANADA PRODURO TO-4 SAE 50 (--- GAL)

DIAGNOSIS

Recommendation
Resample at the next service interval to monitor. (Customer Sample Comment: PM-2 sampled fluid)

Wear
All component wear rates are normal.

Contamination
There is no indication of any contamination in the oil.

Fluid Condition
The condition of the oil is acceptable for the time in service.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		**PCA0087056**	PCA0087115	PCA0087172
Sample Date	Client Info		**25 Oct 2023**	03 Jun 2023	16 Feb 2023
Machine Age	hrs	Client Info	**2234**	1895	1210
Oil Age	hrs	Client Info	**2234**	685	2000
Oil Changed		Client Info	**N/A**	Not Changd	Changed
Sample Status			**NORMAL**	NORMAL	NORMAL

WEAR METALS

		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>800	**94**	52	145
Chromium	ppm	ASTM D5185m	>10	**<1**	<1	<1
Nickel	ppm	ASTM D5185m	>5	**<1**	0	<1
Titanium	ppm	ASTM D5185m	>15	**<1**	<1	<1
Silver	ppm	ASTM D5185m	>2	**0**	0	0
Aluminum	ppm	ASTM D5185m	>75	**1**	2	5
Lead	ppm	ASTM D5185m	>10	**0**	<1	1
Copper	ppm	ASTM D5185m	>75	**10**	7	12
Tin	ppm	ASTM D5185m	>8	**1**	0	<1
Antimony	ppm	ASTM D5185m	>50	**---**	---	---
Vanadium	ppm	ASTM D5185m		**0**	0	0
Cadmium	ppm	ASTM D5185m		**0**	0	0

ADDITIVES

		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	2	**<1**	0	7
Barium	ppm	ASTM D5185m	0	**19**	0	0
Molybdenum	ppm	ASTM D5185m	0	**1**	<1	4
Manganese	ppm	ASTM D5185m	0	**1**	<1	2
Magnesium	ppm	ASTM D5185m	9	**17**	15	45
Calcium	ppm	ASTM D5185m	3114	**2843**	2969	2814
Phosphorus	ppm	ASTM D5185m	1099	**883**	884	985
Zinc	ppm	ASTM D5185m	1245	**1054**	1049	1159
Sulfur	ppm	ASTM D5185m	7086	**7463**	5276	14175

CONTAMINANTS

		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>400	**19**	15	30
Sodium	ppm	ASTM D5185m		**1**	0	4
Potassium	ppm	ASTM D5185m	>20	**<1**	1	1

VISUAL

		method	limit/base	current	history1	history2
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	NONE
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

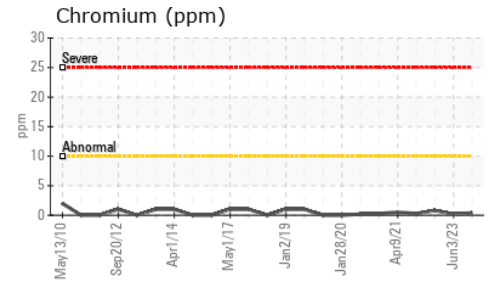# OIL ANALYSIS REPORT

Viscosity @ 40°C
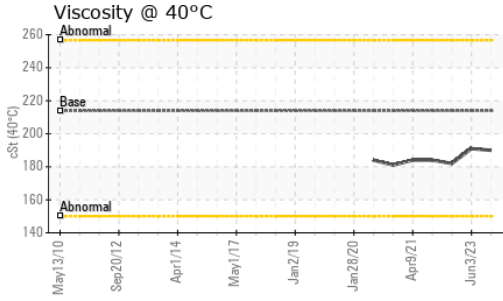
FLUID PROPERTIES

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	213.9	**190**	191	182

SAMPLE IMAGES

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

GRAPHS

Iron (ppm)

Lead (ppm)

Aluminum (ppm)

Chromium (ppm)

Copper (ppm)

Silicon (ppm)

Viscosity @ 40°C

Additives
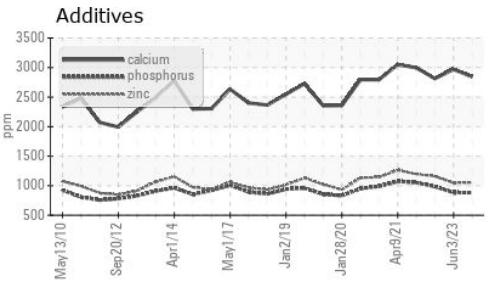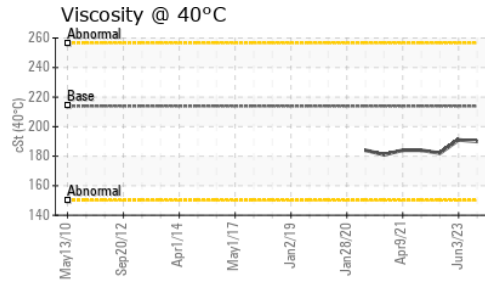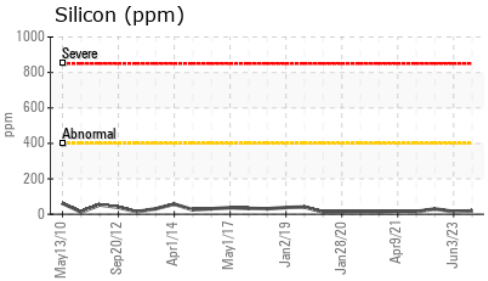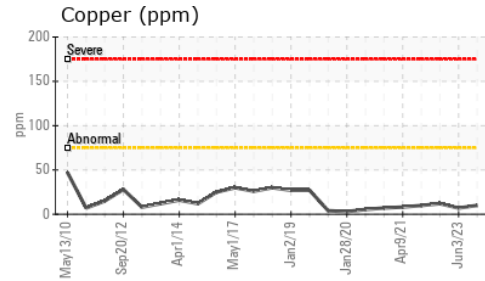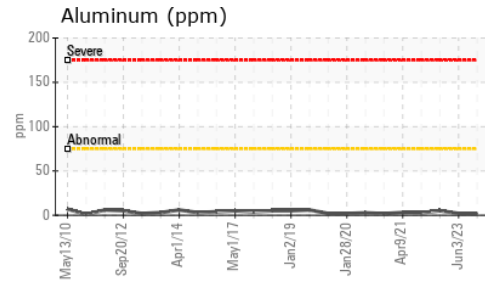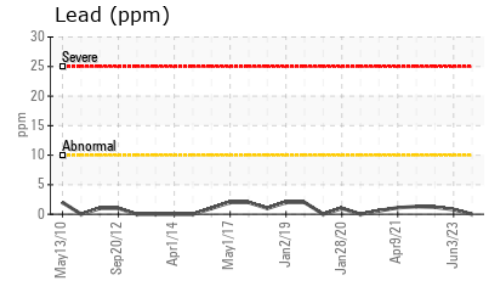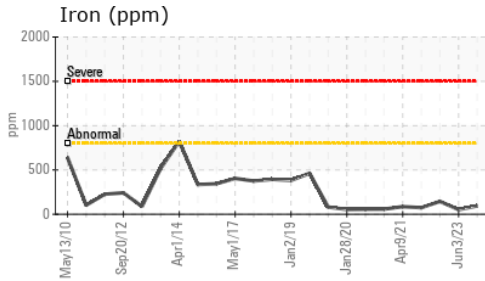
Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513

Sample No. : PCA0087056   **Received** : 30 Oct 2023

Lab Number : 05993861   **Diagnosed** : 01 Nov 2023

Unique Number : 10722221   **Diagnostician** : Sean Felton

Test Package : MOB 1

Kemp Quarries - Muskogee Sand
3395 W 50th St N
Porter, OK
US 74454
Contact:
muskogee@muskogeesand.com
T:
F:

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)

Certificate L2367