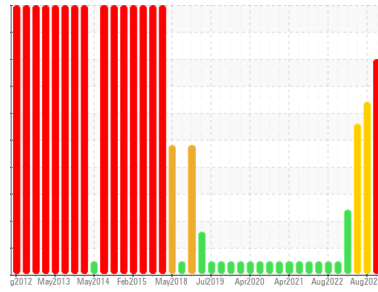


OIL ANALYSIS REPORT



Area
KEMP QUARRIES / MUSKOGEE SAND [66638]
Machine Id
WL056
Component
Front Differential
Fluid
PETRO CANADA PRODURO TO-4 SAE 50 (--- GAL)

Sample Rating Trend



WATER



DIAGNOSIS

Recommendation

We advise that you check all areas where dirt can enter the system. We advise that you check for the source of water entry. The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition. (Customer Sample Comment: PM-3 changed fluid due to contamination. Had bronze material)

Wear

Bearing and/or gear wear is indicated.

Contamination

Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress. There is a moderate concentration of water present 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		PCA0084750	PCA0070433	PCA0087140
Sample Date	Client Info		03 Oct 2023	10 Aug 2023	06 Jun 2023
Machine Age	hrs	Client Info	34177	33775	33310
Oil Age	hrs	Client Info	34177	1190	725
Oil Changed	Client Info		Changed	Not Changd	Not Changd
Sample Status			ABNORMAL	ABNORMAL	ABNORMAL

WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >500	▲ 577	366	388
Chromium	ppm	ASTM D5185m >3	2	1	2
Nickel	ppm	ASTM D5185m >3	2	1	<1
Titanium	ppm	ASTM D5185m >2	▲ 3	2	2
Silver	ppm	ASTM D5185m >2	0	0	0
Aluminum	ppm	ASTM D5185m >30	▲ 37	▲ 39	▲ 33
Lead	ppm	ASTM D5185m >13	▲ 20	▲ 13	8
Copper	ppm	ASTM D5185m >103	▲ 170	▲ 133	▲ 100
Tin	ppm	ASTM D5185m >5	▲ 10	▲ 8	▲ 8
Vanadium	ppm	ASTM D5185m	0	0	<1
Cadmium	ppm	ASTM D5185m	<1	0	<1

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m 2	1	<1	3
Barium	ppm	ASTM D5185m 0	0	0	0
Molybdenum	ppm	ASTM D5185m 0	<1	<1	<1
Manganese	ppm	ASTM D5185m 0	9	5	5
Magnesium	ppm	ASTM D5185m 9	6	21	22
Calcium	ppm	ASTM D5185m 3114	3024	3016	3237
Phosphorus	ppm	ASTM D5185m 1099	1072	970	976
Zinc	ppm	ASTM D5185m 1245	1227	1183	1255
Sulfur	ppm	ASTM D5185m 7086	5657	4807	6356

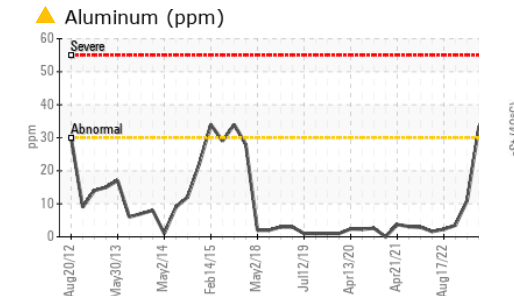
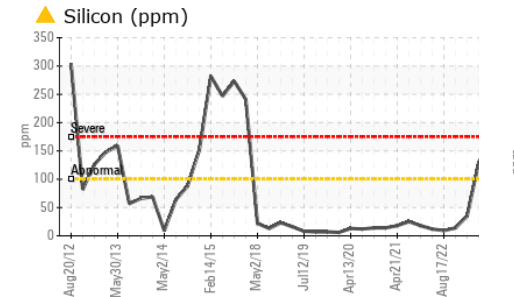
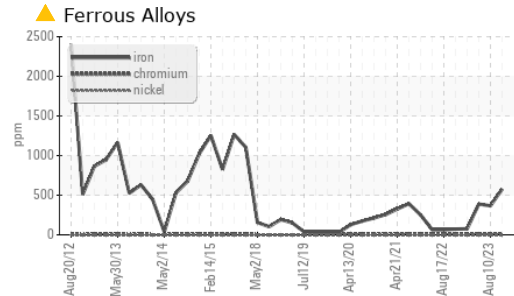
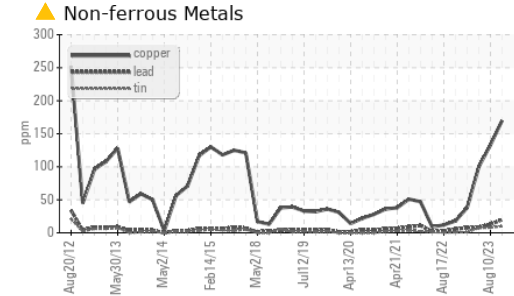
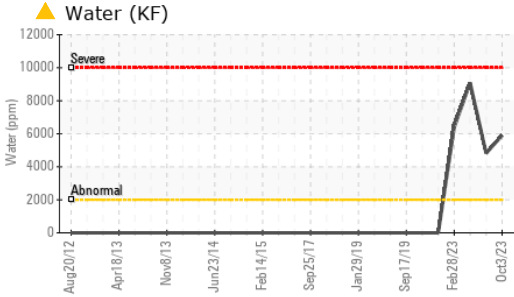
CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >100	▲ 168	▲ 158	▲ 130
Sodium	ppm	ASTM D5185m	7	8	6
Potassium	ppm	ASTM D5185m >20	10	10	8
Water	%	ASTM D6304 >.2	▲ 0.590	▲ 0.482	▲ 0.908
ppm Water	ppm	ASTM D6304 >2000	▲ 5900	▲ 4820	▲ 9080

VISUAL

	method	limit/base	current	history1	history2
White Metal	scalar	*Visual NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual NONE	NONE	NONE	LIGHT
Precipitate	scalar	*Visual NONE	NONE	NONE	NONE
Silt	scalar	*Visual NONE	MODER	NONE	MODER
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 >.2	0.2%	0.2%	NEG
Free Water	scalar	*Visual	NEG	NEG	NEG

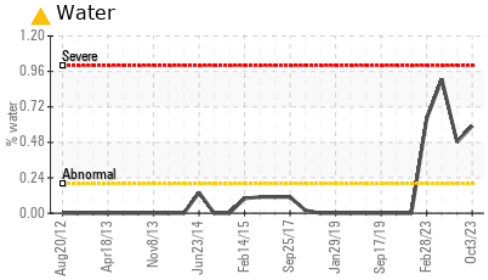
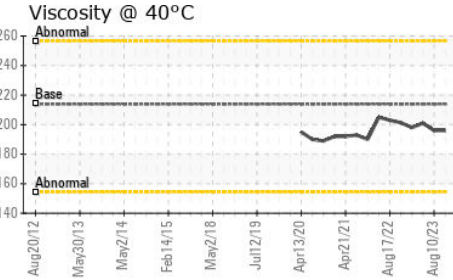
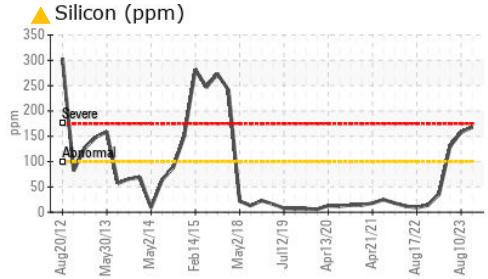
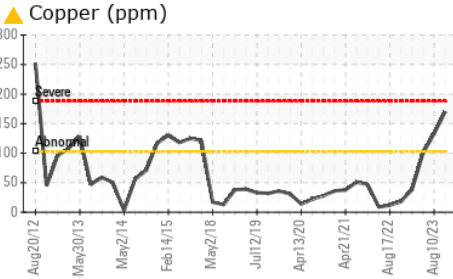
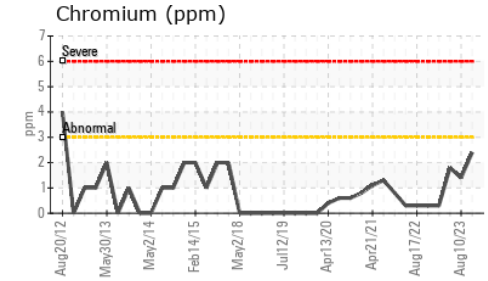
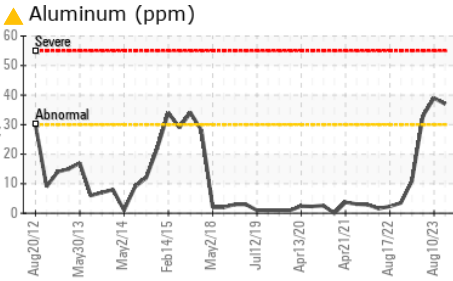
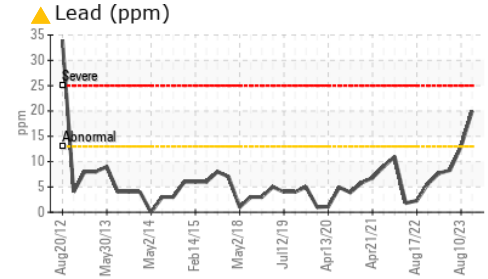
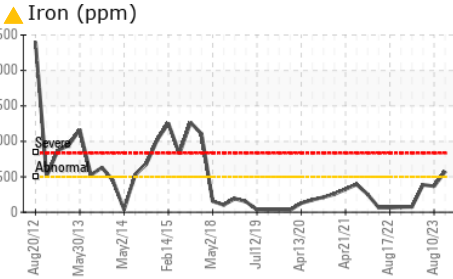
OIL ANALYSIS REPORT



FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	213.9	196	196	201

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

GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : PCA0084750 **Received** : 16 Oct 2023
Lab Number : **05980712** **Diagnosed** : 18 Oct 2023
Unique Number : 10698007 **Diagnostician** : Jonathan Hester
Test Package : MOB 1 (Additional Tests: KF)

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

Certificate L2367
 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)