

## **OIL ANALYSIS REPORT**

# G.LOPES CONSTRUCTION INC./Off-Road

#### Component **Diesel Engine**

Machine I

PETRO CANADA DURON SHP 15W40 (--- GAL)

### DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor.

#### Wear

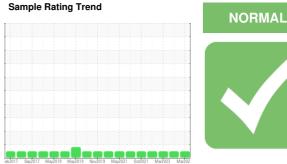
All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil.

### Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

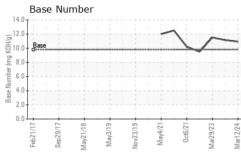


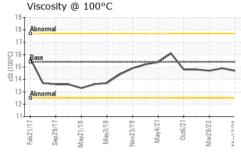


SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0110066	PCA0104662	PCA0083076
Sample Date		Client Info		12 Mar 2024	05 Sep 2023	29 Mar 2023
Machine Age	hrs	Client Info		10126	9834	9544
Oil Age	hrs	Client Info		8769	8767	8754
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	17	14	18
Chromium	ppm	ASTM D5185m	>20	2	2	2
Nickel	ppm	ASTM D5185m	>4	<1	<1	0
Titanium	ppm	ASTM D5185m		<1	<1	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	5	5	4
Lead	ppm	ASTM D5185m	>40	<1	<1	1
Copper	ppm	ASTM D5185m	>330	1	1	1
Tin	ppm	ASTM D5185m	>15	<1	<1	<1
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		<1	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	5	4	5
Barium	ppm	ASTM D5185m	0	0	2	0
Molybdenum	ppm	ASTM D5185m	60	63	64	60
Manganese	ppm	ASTM D5185m	0	<1	<1	1
Magnesium	ppm	ASTM D5185m	1010	919	995	1070
Calcium	ppm	ASTM D5185m	1070	1103	1147	1177
Phosphorus	ppm	ASTM D5185m	1150	050	1010	1007
Zinc				958	1012	1007
200	ppm	ASTM D5185m	1270	958 1201	1278	1388
Sulfur	ppm ppm	ASTM D5185m ASTM D5185m				
	ppm		1270	1201	1278	1388
Sulfur	ppm	ASTM D5185m method	1270 2060	1201 2888	1278 3182	1388 3510
Sulfur CONTAMINAN	ppm TS	ASTM D5185m method	1270 2060 limit/base	1201 2888 current	1278 3182 history1	1388 3510 history2
Sulfur CONTAMINAN Silicon	ppm TS ppm	ASTM D5185m method ASTM D5185m	1270 2060 limit/base >25	1201 2888 current 6	1278 3182 history1 9	1388 3510 history2 7
Sulfur CONTAMINAN Silicon Sodium	ppm TS ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m	1270 2060 limit/base >25	1201 2888 current 6 <1	1278 3182 history1 9 4	1388 3510 history2 7 5
Sulfur CONTAMINAN Silicon Sodium Potassium	ppm TS ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m	1270 2060 limit/base >25 >20	1201 2888 current 6 <1 2	1278 3182 history1 9 4 1	1388 3510 history2 7 5 3
Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm TS ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m method	1270 2060 limit/base >25 >20 limit/base	1201 2888 current 6 <1 2 current	1278 3182 history1 9 4 1 1 history1	1388 3510 history2 7 5 3 3 history2
Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm TS ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m method *ASTM D7844	1270 2060  imit/base >25 >20  imit/base >3	1201 2888 current 6 <1 2 current 0.1	1278 3182 history1 9 4 1 1 history1 0.1	1388 3510 history2 7 5 3 history2 0.1
Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm TS ppm ppm ppm ppm % Abs/cm Abs/.1mm	ASTM D5185m method ASTM D5185m ASTM D5185m *ASTM D7844 *ASTM D7824 *ASTM D7624	1270 2060 <b>imit/base</b> >25 >20 <b>imit/base</b> >3 >20	1201 2888 current 6 <1 2 current 0.1 7.6	1278 3182 history1 9 4 1 1 history1 0.1 7.8	1388 3510 history2 7 5 3 3 history2 0.1 8.1
Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm TS ppm ppm ppm % Abs/cm Abs/cm Abs/.1mm	ASTM D5185m method ASTM D5185m ASTM D5185m *ASTM D7844 *ASTM D7824 *ASTM D7624	1270 2060 limit/base >25 >20 limit/base >3 >20 >30	1201 2888 current 6 <1 2 current 0.1 7.6 18.7 current	1278 3182 history1 9 4 1 1 history1 0.1 7.8 19.1	1388 3510 history2 7 5 3 history2 0.1 8.1 19.1
Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE	ppm TS ppm ppm ppm ppm % Abs/cm Abs/.1mm	ASTM D5185m method ASTM D5185m ASTM D5185m *ASTM D7844 *ASTM D7844 *ASTM D7624 *ASTM D7415	1270 2060 imit/base >25 >20 imit/base >20 >30 imit/base >25	1201 2888 current 6 <1 2 current 0.1 7.6 18.7	1278 3182 history1 9 4 1 1 history1 0.1 7.8 19.1 history1	1388 3510 history2 7 5 3 history2 0.1 8.1 19.1 history2



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