

# **OIL ANALYSIS REPORT**

KEMP QUARRIES / PRYOR STONE [66476]

SAMPLE INFORMATION meth

Sample Rating Trend



NORMAL

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

OHT109 Component Diesel Engine

### DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor. ( Customer Sample Comment: Pm2 performed. All oil samples taken. Engine oil, transmission oil, and all filters changed.)

### 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.

	/IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0086255	PCA0084592	PCA0083931
Sample Date		Client Info		31 Oct 2023	26 Jul 2023	24 Apr 2023
Machine Age	hrs	Client Info		29129	28624	28069
Oil Age	hrs	Client Info		505	28624	633
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATI	ON	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Glycol		WC Method	20	NEG	NEG	NEG
-					_	
WEAR METALS	5	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	42	31	33
Chromium	ppm	ASTM D5185m	>20	1	<1	<1
Nickel	ppm	ASTM D5185m	>2	<1	0	0
Titanium	ppm	ASTM D5185m	>2	<1	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>25	2	2	2
Lead	ppm	ASTM D5185m	>40	6	1	0
Copper	ppm	ASTM D5185m	>330	6	2	5
Tin	ppm	ASTM D5185m	>15	1	<1	0
Vanadium	ppm	ASTM D5185m		0	0	<1
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	2	2	2
Barium	ppm	ASTM D5185m	0	0	0	0
Molybdenum	nom	ASTM D5185m	60	67	62	71
	ppm		00			
-	mqq mqq			<1		<1
Manganese	ppm	ASTM D5185m	0	<1 1009	<1 1023	<1
-	ppm ppm	ASTM D5185m ASTM D5185m		1009	<1	
Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070	1009 1108	<1 1023 1146	<1 1020 1145
Manganese Magnesium Calcium Phosphorus	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070 1150	1009 1108 1114	<1 1023 1146 1094	<1 1020 1145 1055
Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070 1150 1270	1009 1108 1114 1392	<1 1023 1146 1094 1354	<1 1020 1145 1055 1363
Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070 1150 1270 2060	1009 1108 1114 1392 3181	<1 1023 1146 1094 1354 3796	<1 1020 1145 1055 1363 3379
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070 1150 1270 2060 limit/base	1009 1108 1114 1392 3181 current	<1 1023 1146 1094 1354 3796 history1	<1 1020 1145 1055 1363 3379 history2
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m	0 1010 1070 1150 1270 2060	1009 1108 1114 1392 3181 current 9	<1 1023 1146 1094 1354 3796 history1 4	<1 1020 1145 1055 1363 3379 history2 6
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070 1150 1270 2060 limit/base >25	1009 1108 1114 1392 3181 current 9 42	<1 1023 1146 1094 1354 3796 history1 4 13	<1 1020 1145 1055 1363 3379 history2 6 6 63
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070 1150 2060 limit/base >25 >20	1009 1108 1114 1392 3181 current 9 42 10	<1 1023 1146 1094 1354 3796 history1 4 13 4	<1 1020 1145 1055 1363 3379 history2 6 6 63 15
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070 1150 1270 2060 limit/base >25	1009 1108 1114 1392 3181 current 9 42 10 current	<1 1023 1146 1094 1354 3796 history1 4 13 4 history1	<1 1020 1145 1055 1363 3379 history2 6 6 63 15 history2
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070 1150 2060 limit/base >25 >20	1009 1108 1114 1392 3181 current 9 42 10 current 0.7	<1 1023 1146 1094 1354 3796 history1 4 13 4 13 4 history1 0.7	<1 1020 1145 1055 1363 3379 history2 6 6 63 15 history2 0.4
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3	1009 1108 1114 1392 3181 current 9 42 10 current	<1 1023 1146 1094 1354 3796 history1 4 13 4 history1	<1 1020 1145 1055 1363 3379 history2 6 6 63 15 history2
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3	1009 1108 1114 1392 3181 current 9 42 10 current 0.7	<1 1023 1146 1094 1354 3796 history1 4 13 4 13 4 history1 0.7	<1 1020 1145 1055 1363 3379 history2 6 6 63 15 history2 0.4
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN <sup>T</sup> Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 1010 1070 1150 2060 limit/base >25 >20 limit/base >3 >20	1009 1108 1114 1392 3181 current 9 42 10 current 0.7 10.1	<1 1023 1146 1094 1354 3796 history1 4 13 4 13 4 history1 0.7 9.6	<1 1020 1145 1055 1363 3379 history2 6 6 63 15 history2 0.4 9.8
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624	0 1010 1070 1150 1270 2060 imit/base >25 >20 imit/base >3 >20 >30	1009 1108 1114 1392 3181 current 9 42 10 current 0.7 10.1 22.4	<1 1023 1146 1094 1354 3796 history1 4 13 4 13 4 <b>history1</b> 0.7 9.6 20.9	<1 1020 1145 1055 1363 3379 history2 6 6 63 15 history2 0.4 9.8 20.3



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7/20

Mar1

# **OIL ANALYSIS REPORT**

\*Visual

\*Visual

\*Visual

scalar

scalar

scalar

NONE

NONE

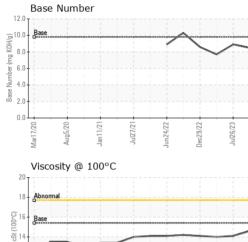
NONE

VISUAL

White Metal

Yellow Metal

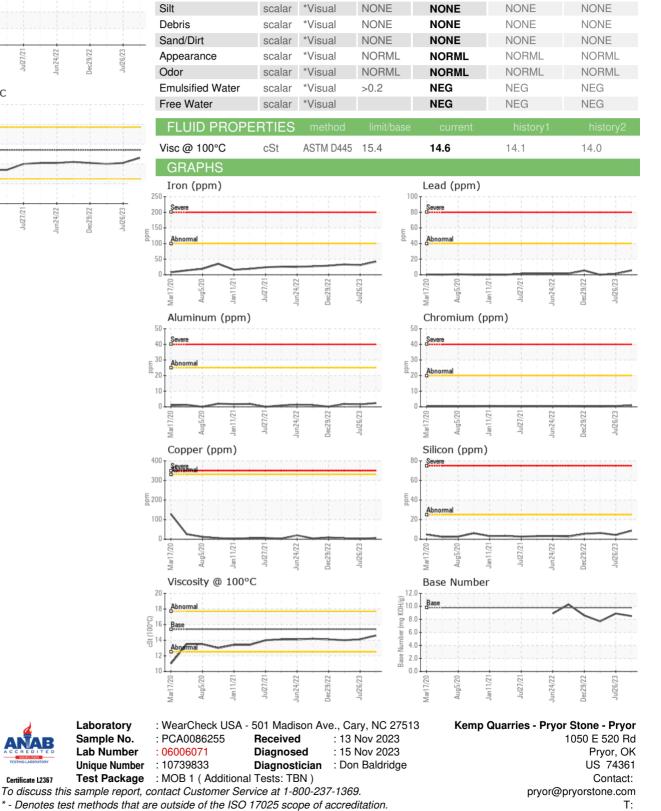
Precipitate



an1

Dec29/22

Jun24/22



NONE

NONE

NONE

NONE

NONE

NONE

NONE

NONE

NONE

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

Certificate L2367

F: