

OIL ANALYSIS REPORT

SAMPLE INFORMATION

Sample Number

Client Info

NORMAL



PCA0062460

KEMP QUARRIES / KEMP STONE - FAIRLAND [66993] **OHT123**

Component **Diesel Engine**

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

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor. (Customer Sample Comment: PM-4 changed fluid and filters)

All component wear rates are normal.

Contamination

There is no indication of any contamination in the

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.

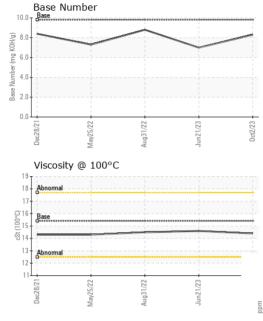
	I			
Dec2021	May2022	Aug2022	Jun2023	Oct2023

PCA0084732 PCA0086314

Sample Date		Client Info		02 Oct 2023	21 Jun 2023	31 Aug 2022
Machine Age	hrs	Client Info		37517	37279	36774
Oil Age	hrs	Client Info		37517	37279	36774
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	28	64	43
Chromium	ppm	ASTM D5185m	>20	<1	2	<1
Nickel	ppm	ASTM D5185m	>4	<1	1	0
Titanium	ppm	ASTM D5185m		<1	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	2	<1	2
Lead	ppm	ASTM D5185m	>40	3	9	15
Copper	ppm	ASTM D5185m	>330	5	9	10
Tin	ppm	ASTM D5185m	>15	<1	2	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	•	4	2
DOTOTI	ppiii	ASTIVI DOTOSITI	U	0	4	
Barium	ppm	ASTM D5185m	0	4	0	0
		ASTM D5185m ASTM D5185m	0 60	4 59	0 66	0 64
Barium Molybdenum Manganese	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0	4 59 <1	0 66 <1	0 64 <1
Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010	4 59 <1 882	0 66 <1 942	0 64 <1 948
Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070	4 59 <1 882 1031	0 66 <1 942 1277	0 64 <1 948 1139
Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150	4 59 <1 882 1031 971	0 66 <1 942 1277 1038	0 64 <1 948 1139 1093
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150 1270	4 59 <1 882 1031 971 1153	0 66 <1 942 1277 1038 1304	0 64 <1 948 1139 1093 1333
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150	4 59 <1 882 1031 971	0 66 <1 942 1277 1038	0 64 <1 948 1139 1093
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150 1270 2060	4 59 <1 882 1031 971 1153	0 66 <1 942 1277 1038 1304 3105 history1	0 64 <1 948 1139 1093 1333 3086 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m	0 60 0 1010 1070 1150 1270 2060	4 59 <1 882 1031 971 1153 2722 current	0 66 <1 942 1277 1038 1304 3105 history1	0 64 <1 948 1139 1093 1333 3086 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base	4 59 <1 882 1031 971 1153 2722 current 3 4	0 66 <1 942 1277 1038 1304 3105 history1 5	0 64 <1 948 1139 1093 1333 3086 history2 4
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base	4 59 <1 882 1031 971 1153 2722 current	0 66 <1 942 1277 1038 1304 3105 history1	0 64 <1 948 1139 1093 1333 3086 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base	4 59 <1 882 1031 971 1153 2722 current 3 4	0 66 <1 942 1277 1038 1304 3105 history1 5	0 64 <1 948 1139 1093 1333 3086 history2 4
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base >25	4 59 <1 882 1031 971 1153 2722 current 3 4	0 66 <1 942 1277 1038 1304 3105 history1 5 8	0 64 <1 948 1139 1093 1333 3086 history2 4 2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20	4 59 <1 882 1031 971 1153 2722 current 3 4 1 current 0.5 9.7	0 66 <1 942 1277 1038 1304 3105 history1 5 8 2 history1 0.3 7.5	0 64 <1 948 1139 1093 1333 3086 history2 4 2 1 history2 0.8 11.6
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	4 59 <1 882 1031 971 1153 2722 current 3 4 1 current 0.5	0 66 <1 942 1277 1038 1304 3105 history1 5 8 2 history1 0.3	0 64 <1 948 1139 1093 1333 3086 history2 4 2 1 history2 0.8
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm	ASTM D5185m method ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3 >20	4 59 <1 882 1031 971 1153 2722 current 3 4 1 current 0.5 9.7	0 66 <1 942 1277 1038 1304 3105 history1 5 8 2 history1 0.3 7.5	0 64 <1 948 1139 1093 1333 3086 history2 4 2 1 history2 0.8 11.6
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm	ASTM D5185m method ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3 >20 >30	4 59 <1 882 1031 971 1153 2722 current 3 4 1 current 0.5 9.7 20.9	0 66 <1 942 1277 1038 1304 3105 history1 5 8 2 history1 0.3 7.5 18.5	0 64 <1 948 1139 1093 1333 3086 history2 4 2 1 history2 0.8 11.6 24.0
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAI	ppm	ASTM D5185m Method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D7185m *ASTM D7185m	0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3 >20 >30 limit/base	4 59 <1 882 1031 971 1153 2722 current 3 4 1 current 0.5 9.7 20.9 current	0 66 <1 942 1277 1038 1304 3105 history1 5 8 2 history1 0.3 7.5 18.5 history1	0 64 <1 948 1139 1093 1333 3086 history2 4 2 1 history2 0.8 11.6 24.0 history2



OIL ANALYSIS REPORT



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
FLUID PROPE	RTIES	method	limit/hasa	current	history1	hietory2

Free Water	scala	*Visual		NEG	NEG	NEG	
FLUID PROP	ERTIES	S method	limit/base	current	history1	history	/2
Visc @ 100°C	cSt	ASTM D445	15.4	14.4	14.6	14.5	
GRAPHS							
Iron (ppm)			10	Lead (ppm)			
200 Severe				Severe			
150 100 Abnormal			5.	0			
				Abnormal			-
50				0			_
Dec28/21	Aug31/22 -	Jun21/23	0ct2/23	Dec28/21 May25/22	Aug31/22	Jun21/23	0ct2/23
് ⊵ Aluminum (ppm		ng.	J	č § Chromium (p		구	
50 T	, 		5	0T	,biii) 		
40 Severe				O Severe			
20 Abnormal			E 3	Abnormal			
10			1	0			
727	722	/23		727	/22	/23	Z3
Dec28/21	Aug31/22	Jun21/23	0ct2/23	Dec28/21 May25/22	Aug31/22	Jun21/23	0ct2/23
Copper (ppm)			9	Silicon (ppm))		
Severe Pabrormal				Severe			
200			Ed 4				
100				Abnormal			
0				0			_
Dec28/21	Aug31/22	Jun21/23	0ct2/23 ·	Dec28/21	Aug31/22	Jun21/23	Oct2/23
		nh.	ō			nh.	0
Viscosity @ 100°				Base Number			
18 - Abnormal			r (mg KOH/g)			-	
0 16 - Base				0			





Laboratory Sample No. Lab Number

Unique Number : 10697458

: PCA0084732 : 05980163

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: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received Diagnosed

Diagnostician : Don Baldridge Test Package : MOB 1 (Additional Tests: TBN)

Jun21/23

: 16 Oct 2023 : 18 Oct 2023

Base Number

Kemp Quarries - Kemp Stone - Fairland 18350 S 590 Rd Fairland, OK

US 74343 Contact: fairland@kempstone.com

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)

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