

# **OIL ANALYSIS REPORT**

# Area KEMP QUARRIES / KEMP STONE - FAIRLAND [66778] WL119 Component

Diesel Engine

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

## DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor. ( Customer Sample Comment: PM-1 changed filters and fluid )

## Wear

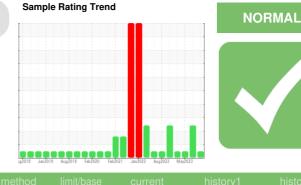
All component wear rates are normal.

#### 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 INFORM	ATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0084808	PCA0086458	PCA0085740
Sample Date		Client Info		12 Oct 2023	09 Aug 2023	16 May 2023
Machine Age	hrs	Client Info		6656	6527	6375
Oil Age	hrs	Client Info		6656	6527	6375
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	ABNORMAL	NORMAL
CONTAMINATIO	ON	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	40	62	54
Chromium	ppm	ASTM D5185m	>20	1	2	2
Nickel	ppm	ASTM D5185m	>4	0	0	0
Titanium	ppm	ASTM D5185m		<1	<1	<1
	ppm	ASTM D5185m	>3	0	0	0
	ppm	ASTM D5185m	>20	8	<b>1</b> 3	11
	ppm	ASTM D5185m	>40	0	0	<1
	ppm	ASTM D5185m	>330	6	1	2
	ppm	ASTM D5185m	>15	0	0	<1
	ppm	ASTM D5185m		0	0	0
	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		2	18	8
Barium	ppm	ASTM D5185m		0	0	0
	ppm	ASTM D5185m		72	76	80
	ppm	ASTM D5185m		<1	<1	<1
	ppm	ASTM D5185m		1164	1250	1191
	ppm	ASTM D5185m		1316	1800	1564
	ppm	ASTM D5185m		1124	1285	1170
	ppm	ASTM D5185m		1405	1594	1481
	ppm	ASTM D5185m		3093	4186	3772
CONTAMINANT	S	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	16	<mark>▲</mark> 36	24
Sodium	ppm	ASTM D5185m		4	4	2
Potassium	ppm	ASTM D5185m	>20	4	2	3
INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	0.4	0.4	0.4
Nitration	Abs/cm	*ASTM D7624	>20	7.9	8.4	9.3
	Abs/.1mm	*ASTM D7415	>30	20.0	20.8	20.0
FLUID DEGRAD	ATION	method	limit/base	current	history1	history2
Ouidation	Ales/dame-	****	05	10.0	10.0	

16.3

9.7

16.9

10.3

Oxidation

Abs/.1mm \*ASTM D7414 >25

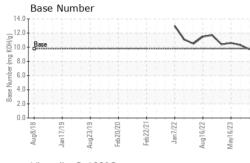
Base Number (BN) mg KOH/g ASTM D2896 9.8

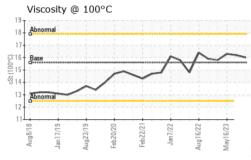
10.6

15.7



# **OIL ANALYSIS REPORT**





hite Metal llow Metal ecipitate t bris nd/Dirt pearance lor nulsified Water ee Water FLUID PROPE Sc @ 100°C CRAPHS ron (ppm) Severe Normal	cSt	*Visual *Visual *Visual *Visual *Visual *Visual *Visual *Visual <b>method</b> ASTM D445	NONE NONE NONE NONE NORML NORML >0.2 15.6	NONE NONE NONE NONE NORML NORML NORML NEG NEG NEG 16.0	NONE NONE NONE NONE NORML NORML NEG NEG history1 16.2	NONE NONE NONE NONE NORML NORML NEG NEG history2 16.3
ecipitate t t bris nd/Dirt pearance lor nulsified Water ee Water FLUID PROPEI sc @ 100°C GRAPHS ron (ppm)	scalar scalar scalar scalar scalar scalar scalar scalar scalar	*Visual *Visual *Visual *Visual *Visual *Visual *Visual *Visual <b>method</b>	NONE NONE NONE NORML NORML >0.2 limit/base 15.6	NONE NONE NORE NORML NORML NEG NEG NEG 16.0	NONE NONE NONE NORML NORML NEG NEG history1	NONE NONE NONE NORML NORML NEG NEG history2
t bris nd/Dirt pearance lor nulsified Water ee Water FLUID PROPEI sc @ 100°C CRAPHS ron (ppm)	scalar scalar scalar scalar scalar scalar scalar scalar	*Visual *Visual *Visual *Visual *Visual *Visual *Visual <b>method</b>	NONE NONE NORML NORML >0.2 limit/base 15.6	NONE NORE NORML NORML NEG NEG Current 16.0	NONE NONE NORML NORML NEG NEG history1	NONE NONE NORML NORML NEG NEG history2
briss nd/Dirt pearance lor hulsified Water ee Water FLUID PROPEI sc @ 100°C GRAPHS ron (ppm)	scalar scalar scalar scalar scalar scalar scalar scalar	*Visual *Visual *Visual *Visual *Visual *Visual method	NONE NORML NORML >0.2 limit/base 15.6	NONE NORML NORML NEG NEG Current 16.0	NONE NORML NORML NEG NEG history1	NONE NORML NORML NEG NEG history2
nd/Dirt pearance lor hulsified Water ee Water FLUID PROPEI Sc @ 100°C GRAPHS ron (ppm)	scalar scalar scalar scalar scalar scalar scalar scalar	*Visual *Visual *Visual *Visual *Visual method	NONE NORML >0.2 iimit/base 15.6	NORE NORML NORML NEG NEG Current 16.0	NONE NORML NORML NEG NEG history1	NONE NORML NORML NEG NEG history2
pearance lor hulsified Water ee Water FLUID PROPEI Sc @ 100°C GRAPHS ron (ppm)	scalar scalar scalar scalar scalar RTIES cSt	*Visual *Visual *Visual *Visual method	NORML NORML >0.2 limit/base 15.6 100 80 60 40	NORML NORML NEG NEG Current 16.0	NORML NORML NEG NEG history1	NORML NORML NEG NEG history2
lor hulsified Water ee Water FLUID PROPER FLUID PROPER	scalar scalar scalar RTIES cSt	*Visual *Visual *Visual method	NORML >0.2 limit/base 15.6	NORML NEG NEG Current 16.0 Lead (ppm)	NORML NEG NEG history1	NORML NEG NEG history2
Abnormal	scalar scalar RTIES cSt	*Visual *Visual method	>0.2 limit/base 15.6	NEG NEG current 16.0 Lead (ppm)	NEG NEG history1	NEG NEG history2
ee Water FLUID PROPEI sc @ 100°C GRAPHS ron (ppm) Severe Abnormal 6U/(1up, 000 pr and 000 pr	scalar RTIES cSt	*Visual method	limit/base 15.6	NEG current 16.0 Lead (ppm)	NEG history1	NEG history2
ELUID PROPER Sc @ 100°C CRAPHS Fron (ppm) Severe Abnormal 6U/(1ug 6U	RTIES cSt	method	limit/base 15.6	current 16.0 Lead (ppm)	history1	history2
ELUID PROPER Sc @ 100°C CRAPHS Fron (ppm) Severe Abnormal 6U/(1ug 6U	RTIES cSt	method		16.0 Lead (ppm)	history1	history2
sc @ 100°C CRAPHS ron (ppm) Severe Abnormal 6U/(1uer 6U/(1uer nmy	cSt			16.0 Lead (ppm)		
ron (ppm)			80 60 40	Severe		
Jan 17/19 Aug 23/19 Feb 20.20	721		80 60 40	Severe		
Jan 17/19			80 60 40	Severe		
Jan 17/19			면 <sup>60</sup> 전 40			
Jan 17/19	121		튭 <sub>40</sub>	Abnormal		
Jan 17/19			40	+ 0		
Jan 17/19		1	///			
, 4 –	21-		- 0			
, 4 –		3/22		8//8 //19	)/20 - 2/21 -	5/22 - 5/23 -
	Feb22/21	Jan7/22 Aug16/22	May I b/ 23	Aug8/18 Jan 17/19 Aug23/19	Feb20/20 Feb22/21 Jan7/22	Aug16/22 May16/23
		~	_	Chromium (pp		7 6
(FF)			50	The second second second		
	- N	\	40	Severe		
			<sup>30</sup> 20			
Severe			<sup>봄</sup> 20	- Abnormal	~	
Abnormal		1	10		/ \	
			0	6 6		3
n17/1 g23/1 b20/2	b22/2	an7/2 g16/2	7/q   Á	n17/1 g23/1	b20/2 b22/5 an7/2	Aug16/22 . May16/23 .
, 4 1	Ľ	L Au	N G	, 4	L Fe	Aur
			500	Silicon (ppm)		
Severe Abnormal						
					$\Lambda$	
			E 200		$1 \wedge 1$	
			100		$1 \wedge$	
				Abnormal	$\sim$ 1 $\cdot$	
3/19	2/21	6/22		8/18 7/19 3/19	0/20	6/22
Jan1 Aug2: Feb2(	Feb2	Jan Aug1	Midy I	Aug Jan 1 Aug 2:	Feb2 Feb2	Aug 16/22 May 16/23
/iscosity @ 100°C				Base Number		
Abnormal						
			9 p10.0	Base		~~~
	~	$\sim$	ber (m			
Abnonnal			F.0			
			Base			
3/19	2/21	3/22		8/18 7/19	0/20 - 2/21 -	6/22
Jan 1. Aug 25 Feb 20	Feb2	Jan: Aug16	vi dy i i	Augi Jan 17 Aug 23	Feb 21 Feb 2: Jan 7	Aug16/22 May16/23
CA0084808 F   987155 E   1709817 E   OB 1 (Additional T   ct Customer Service	Received Diagnose Diagnost Fests: TE ce at 1-8	ad: :23 ( ad: :25 ( ician: Dor BN) 000-237-1368	Oct 2023 Oct 2023 n Baldridge 9.	8 Kemp Qu	18	tone - Fairland 1350 S 590 Rd Fairland, OK US 74343 Contact: empstone.com T:
	earCheck USA - 5 CA0084808 987155 Diversional Base Burrowned Burliner Burli	Copper (ppm) Severe Wommed But Copper (ppm) Severe But Copper (ppm) Severe But Copper (ppm) But Copper (ppm) Bu	Copper (ppm) Severe Annomal Base Abnormal Abnormal Base Abnormal Abn	Copper (ppm) Copper (ppm) Co	ei/L11er ei/L11	EVER USA - 501 Madison Ave., Cary, NC 27513 CAOBA84088 Received : 23 Oct 2023 18 200084808 Received : 23 Oct 2023 18 200084808 Received : 23 Oct 2023 18 200084808 Received : 23 Oct 2023 18 200084808 Received : 25 Oct 2023 18 2000817 Diagnosetician : Don Baldridge OB 1 (Additional Tests: TBN) ct Customer Service at 1-800-237-1369. tside of the ISO 17025 scope of accreditation.



Tes To discuss this san \* - Denotes test me Statements of confo