

OIL ANALYSIS REPORT

NORMAL

Machine Id 2295

Component Diesel Engine

Fluid

PETRO CANADA DURON SHP 15W40 (48 QTS)

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.

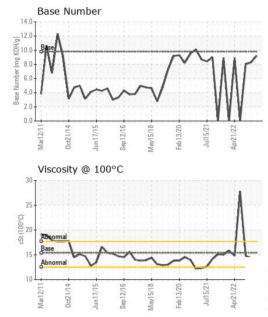
Fluid Condition

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

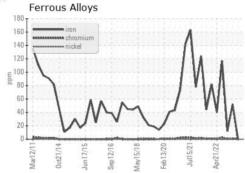
310)		ar2011 Oct201	 Junzuis Sepzuis 	May2018 Feb2020 Jul2021 /	012022	
SAMPLE INFORM	1ATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0092654	GFL0092660	GFL0072398
Sample Date		Client Info		02 Nov 2023	31 Oct 2023	15 Jun 2023
Machine Age	mls	Client Info		455994	455994	455994
Oil Age	mls	Client Info		197	454	455994
Oil Changed		Client Info		Not Changd	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATI	ON	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS	6	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>120	2	52	12
Chromium	ppm	ASTM D5185m	>20	<1	1	<1
Nickel	ppm	ASTM D5185m	>5	<1	<1	0
Titanium	ppm	ASTM D5185m	>2	0	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	1	2	2
Lead	ppm	ASTM D5185m	>40	0	2	<1
Copper	ppm	ASTM D5185m	>330	0	2	2
Tin	ppm	ASTM D5185m	>15	<1	<1	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	<1	0
ADDITIVES		method	limit/base	current	history1	history2
			in the babb	cancent	motory	,
Boron	ppm	ASTM D5185m	0	15	17	144
Boron Barium	ppm ppm	ASTM D5185m				
		ASTM D5185m	0	15	17	144
Barium	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0	15 0	17 0	144 0
Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	15 0 60	17 0 62	144 0 74
Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	15 0 60 0	17 0 62 0	144 0 74 <1
Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	15 0 60 0 951	17 0 62 0 756	144 0 74 <1 207
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	15 0 60 0 951 1117	17 0 62 0 756 1207	144 0 74 <1 207 1743 955 1116
Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	15 0 60 0 951 1117 1058	17 0 62 0 756 1207 933	144 0 74 <1 207 1743 955
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	0 0 60 0 1010 1070 1150 1270	15 0 60 951 1117 1058 1311	17 0 62 0 756 1207 933 1148	144 0 74 <1 207 1743 955 1116
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 ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	15 0 60 951 1117 1058 1311 3332	17 0 62 0 756 1207 933 1148 3399	144 0 74 <1 207 1743 955 1116 3566
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANT	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	15 0 60 0 951 1117 1058 1311 3332 current	17 0 62 0 756 1207 933 1148 3399 history1	144 0 74 <1 207 1743 955 1116 3566 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANT Silicon	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 imit/base >25	15 0 60 0 951 1117 1058 1311 3332 current 5	17 0 62 0 756 1207 933 1148 3399 history1 10	144 0 74 <1 207 1743 955 1116 3566 history2 8
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANT Silicon Sodium	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 imit/base >25	15 0 60 951 1117 1058 1311 3332 current 5 0	17 0 62 0 756 1207 933 1148 3399 history1 10 0	144 0 74 <1 207 1743 955 1116 3566 history2 8 2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANT Silicon Sodium Potassium	ppm	ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20	15 0 60 951 1117 1058 1311 3332 current 5 0 current	17 0 62 0 756 1207 933 1148 3399 history1 10 0 2	144 0 74 <1 207 1743 955 1116 3566 history2 8 2 2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANT Silicon Sodium Potassium INFRA-RED	ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 1imit/base >20	15 0 60 951 1117 1058 1311 3332 current 5 0 <1 current	17 0 62 0 756 1207 933 1148 3399 history1 10 0 2 2 history1	144 0 74 <1 207 1743 955 1116 3566 history2 8 2 2 2 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANT Silicon Sodium Potassium INFRA-RED Soot %	ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 1imit/base >20	15 0 60 951 1117 1058 1311 3332 <u>current</u> 5 0 <1 <u>current</u>	17 0 62 0 756 1207 933 1148 3399 history1 10 0 2 history1 3.1	144 0 74 <1 207 1743 955 1116 3566 history2 8 2 2 2 history2 0.9
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANT Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 >20 imit/base >20	15 0 60 0 951 1117 1058 1311 3332 current 5 0 <1 5 0 <1 current 0.2 4.7	17 0 62 0 756 1207 933 1148 3399 history1 10 0 2 history1 3.1 8.0	144 0 74 <1 207 1743 955 1116 3566 history2 8 2 2 8 2 2 history2 0.9 6.6
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANT Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 imit/base >20 imit/base >20	15 0 60 0 951 1117 1058 1311 3332 current 5 0 <1 current 0.2 4.7 17.4	17 0 62 0 756 1207 933 1148 3399 history1 10 0 2 history1 3.1 8.0 22.4	144 0 74 <1 207 1743 955 1116 3566 history2 8 2 2 2 history2 0.9 6.6 19.3
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANT Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD Oxidation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 2060 2060 225 20 220 220 1imit/base >20 >20 30 30	15 0 60 951 1117 1058 1311 3332 current 5 0 <1 current 0.2 4.7 17.4 current	17 0 62 0 756 1207 933 1148 3399 history1 10 0 2 history1 3.1 8.0 22.4 history1	144 0 74 <1 207 1743 955 1116 3566 history2 8 2 2 history2 0.9 6.6 19.3 history2



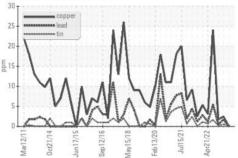
OIL ANALYSIS REPORT



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/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.2	14.3	14.8
GRAPHS						



Non-ferrous Metals



Viscosity @ 100°C

30

28

\$ 18

16

14

: GFL0092654

: 05998821

: 10727181

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.

Laboratory

Sample No.

Lab Number

Unique Number

Test Package : FLEET

26 24 () 22 20 20 Abno Bas 10 Apr21/22 -Jun17/15 Feb13/20 Mar12/11 Mav15/18 Oct21/14 Sep 12/16

Received

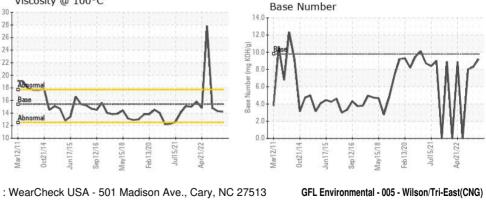
Diagnosed

Diagnostician

: 06 Nov 2023

: 07 Nov 2023

: Wes Davis



2810 Contentnea Road S Wilson, NC US 27893-8501 Contact: SPENCER LIGGON spencer.liggon@gflenv.com T: (800)207-6618 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F:



Certificate L2367

Submitted By: WALTER SKOKOWSKI