

### **OIL ANALYSIS REPORT**

Sample Rating Trend



# Machine Id 929082-260353

Component Diesel Engine

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

#### DIAGNOSIS

#### Recommendation

Oil and filter change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor.

#### Wear

All component wear rates are normal.

#### Contamination

Elemental level of silicon (Si) above normal indicating ingress of seal material.

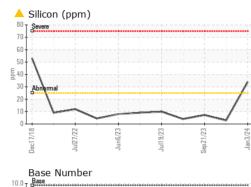
#### Fluid Condition

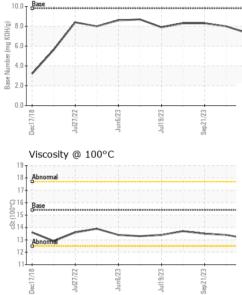
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0104917	GFL0088104	GFL0088155
Sample Date		Client Info		03 Jan 2024	16 Nov 2023	21 Sep 2023
Machine Age	hrs	Client Info		10987	10841	0
Oil Age	hrs	Client Info		2282	2282	0
Oil Changed		Client Info		Changed	N/A	N/A
Sample Status				ABNORMAL	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	9	26	8
Chromium	ppm	ASTM D5185m	>20	<1	1	<1
Nickel	ppm	ASTM D5185m	>4	0	<1	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	1	2	<1
Lead	ppm	ASTM D5185m	>40	1	4	<1
Copper	ppm	ASTM D5185m	>330	1	2	0
Tin	ppm	ASTM D5185m	>15	<1	<1	0
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current <1	history1 <1	history2 0
	ppm ppm					
Boron		ASTM D5185m	0	<1	<1	0
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	<1 0	<1 0	0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	<1 0 56	<1 0 55	0 0 61
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	<1 0 56 <1	<1 0 55 0	0 0 61 0
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	<1 0 56 <1 903	<1 0 55 0 870	0 0 61 0 1043
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	<1 0 56 <1 903 991	<1 0 55 0 870 1010	0 0 61 0 1043 1133
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	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	<1 0 56 <1 903 991 1050	<1 0 55 0 870 1010 990	0 0 61 0 1043 1133 1079
Boron 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	<1 0 56 <1 903 991 1050 1184	<1 0 55 0 870 1010 990 1167	0 0 61 0 1043 1133 1079 1353
Boron 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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	<1 0 56 <1 903 991 1050 1184 2935	<1 0 55 0 870 1010 990 1167 3370	0 0 61 0 1043 1133 1079 1353 3389
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	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 0 60 1010 1070 1150 1270 2060 limit/base	<1 0 56 <1 903 991 1050 1184 2935 current	<1 0 55 0 870 1010 990 1167 3370 history1	0 0 61 0 1043 1133 1079 1353 3389 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b>	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 limit/base	<1 0 56 <1 903 991 1050 1184 2935 current 34	<1 0 55 0 870 1010 990 1167 3370 history1 3	0 0 61 00 1043 1133 1079 1353 3389 history2 7
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 limit/base	<1 0 56 <1 903 991 1050 1184 2935 <u>current</u> ▲ 34 3 0	<1 0 55 0 870 1010 990 1167 3370 history1 3 2	0 0 61 00 1043 1133 1079 1353 3389 history2 7 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	<1 0 56 <1 903 991 1050 1184 2935 <u>current</u> ▲ 34 3 0	<1 0 55 0 870 1010 990 1167 3370 history1 3 2 2	0 0 61 0 1043 1133 1079 1353 3389 history2 7 3 3 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 limit/base >25	<1 0 56 <1 903 991 1050 1184 2935 current 34 3 0 current	<1 0 55 0 870 1010 990 1167 3370 history1 3 2 2 2 history1	0 0 61 0 1043 1133 1079 1353 3389 history2 7 3 3 <1 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >20	<1 0 56 <1 903 991 1050 1184 2935 current 3 0 current 0.8	<1 0 55 0 870 1010 990 1167 3370 history1 3 2 2 2 history1 0.2	0 0 61 0 1043 1133 1079 1353 3389 history2 7 3 <1 5 history2 0.2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN 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 limit/base >25 20 limit/base >3 >20	<1 0 56 <1 903 991 1050 1184 2935 current 34 3 0 current 0.8 9.3	<1 0 55 0 870 1010 990 1167 3370 history1 3 2 2 2 history1 0.2 6.2	0 0 61 0 1043 1133 1079 1353 3389 history2 7 3 3 4 1 5 3 2 1 0.2 6.5
Boron Barium Molybdenum 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 D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 limit/base >3 >20 >30	<1 0 56 <1 903 991 1050 1184 2935 current 34 3 0 current 0.8 9.3 20.9	<1 0 55 0 870 1010 990 1167 3370 history1 3 2 2 2 history1 0.2 6.2 17.9	0 0 61 0 1043 1133 1079 1353 3389 history2 7 3 <1 5 4 0.2 6.5 18.3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 >20 Salar >3 >20 >30	<1 0 56 <56 <1 903 991 1050 1184 2935 Current 34 3 0 Current 0.8 9.3 20.9 Current	<1 0 55 0 870 1010 990 1167 3370 history1 3 2 2 history1 0.2 6.2 17.9 history1	0 0 61 0 1043 1133 1079 1353 3389 history2 7 3 <1 history2 0.2 6.5 18.3 history2

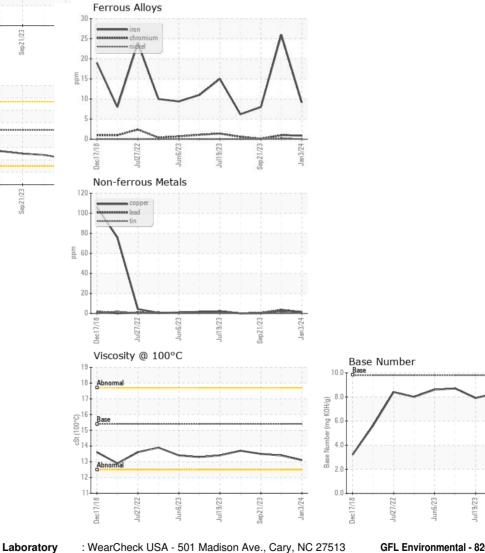


## **OIL ANALYSIS REPORT**





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	13.1	13.4	13.5
GRAPHS						

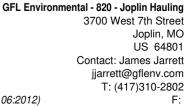


: 08 Jan 2024

: 09 Jan 2024

Diagnostician : Sean Felton





Certificate 12367 **Test Package** : FLEET 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)

Recieved

Diagnosed

: GFL0104917

: 06053648

Sample No.

Lab Number

Unique Number : 10819597

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