

# **OIL ANALYSIS REPORT**

# Area (41041HA) 827021-1033

Component Diesel Engine

Fluid PETRO CANADA DURON SHP 15W40 (--- LTR)

## DIAGNOSIS

### Recommendation

Resample at the next service interval to monitor.

#### Wear

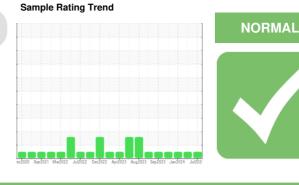
All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil.

### Fluid Condition

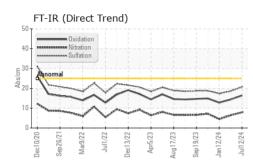
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

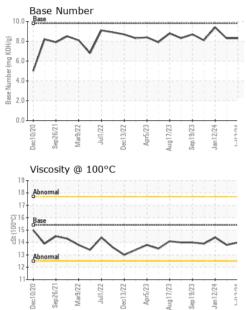


SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0112866	GFL0112828	GFL0100137
Sample Date		Client Info		12 Jul 2024	10 Apr 2024	12 Jan 2024
Machine Age	mls	Client Info		227457	182326	182326
Oil Age	mls	Client Info		227457	182326	182326
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<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	>165	5	2	2
Chromium	ppm	ASTM D5185m	>5	<1	0	0
Nickel	ppm	ASTM D5185m	>4	0	<1	0
Titanium	ppm	ASTM D5185m	>2	0	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	2	2	<1
Lead	ppm	ASTM D5185m	>150	<1	<1	0
Copper	ppm	ASTM D5185m	>90	23	0	1
Tin	ppm	ASTM D5185m	>5	<1	<1	0
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	0	6	6
Darium		ASTM D5185m	0	0	0	0
Barium	ppm					
Molybdenum	ppm ppm	ASTM D5185m	60	60	55	58
		ASTM D5185m ASTM D5185m	60 0	60 0	55 0	58 0
Molybdenum	ppm					
Molybdenum Manganese	ppm ppm	ASTM D5185m	0	0	0	0
Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m	0 1010	0 967	0 951	0 970
Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070	0 967 1127	0 951 1119	0 970 1101
Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070 1150	0 967 1127 1151	0 951 1119 1062	0 970 1101 1111
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070 1150 1270	0 967 1127 1151 1327	0 951 1119 1062 1266	0 970 1101 1111 1253
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>Method</b>	0 1010 1070 1150 1270 2060	0 967 1127 1151 1327 3698	0 951 1119 1062 1266 3856	0 970 1101 1111 1253 3515
Molybdenum 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 <b>Method</b>	0 1010 1070 1150 1270 2060 Iimit/base	0 967 1127 1151 1327 3698 current	0 951 1119 1062 1266 3856 history1	0 970 1101 1111 1253 3515 history2
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm 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 >35	0 967 1127 1151 1327 3698 current 8	0 951 1119 1062 1266 3856 history1 9	0 970 1101 1111 1253 3515 history2 10
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m ASTM D5185m	0 1010 1070 1150 1270 2060 limit/base >35	0 967 1127 1151 1327 3698 current 8 4	0 951 1119 1062 1266 3856 history1 9 3	0 970 1101 1111 1253 3515 history2 10 2
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm 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 <b>limit/base</b> >35 >20	0 967 1127 1151 1327 3698 current 8 4 0	0 951 1119 1062 1266 3856 history1 9 3 1	0 970 1101 1111 1253 3515 history2 10 2 1
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm TS ppm 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 <b>limit/base</b> >35 >20	0 967 1127 1151 1327 3698 current 8 4 0 current	0 951 1119 1062 1266 3856 history1 9 3 1 1 history1	0 970 1101 1111 1253 3515 history2 10 2 1 1 history2
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	0 1010 1070 1150 1270 2060 <b>limit/base</b> >20 <b>limit/base</b> >7.5	0 967 1127 1151 1327 3698 current 8 4 0 current 0.2	0 951 1119 1062 1266 3856 history1 9 3 1 1 history1 0.2	0 970 1101 1111 1253 3515 history2 10 2 1 1 history2 0.1
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624	0 1010 1070 1150 1270 2060 <b>limit/base</b> >35 >20 <b>limit/base</b> >7.5 >20	0 967 1127 1151 1327 3698 <u>current</u> 8 4 0 <u>current</u> 0.2 7.9	0 951 1119 1062 1266 3856 history1 9 3 1 1 history1 0.2 6.4	0 970 1101 1111 1253 3515 history2 10 2 1 1 history2 0.1 4.5
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624	0 1010 1070 1150 1270 2060 <b>limit/base</b> >20 <b>limit/base</b> >7.5 >20 >30	0 967 1127 1151 1327 3698 current 8 4 0 current 0.2 7.9 20.7	0 951 1119 1062 1266 3856 history1 9 3 1 9 3 1 1 0.2 6.4 18.6	0 970 1101 1111 1253 3515 history2 10 2 1 1 history2 0.1 4.5 17.4
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAI	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7844	0 1010 1070 1150 1270 2060 imit/base >35 >20 imit/base >7.5 >20 >30 imit/base	0 967 1127 1151 1327 3698 current 8 4 0 current 0.2 7.9 20.7 current	0 951 1119 1062 1266 3856 history1 9 3 1 1 history1 0.2 6.4 18.6 history1	0 970 1101 1111 1253 3515 history2 10 2 1 1 history2 0.1 4.5 17.4 history2



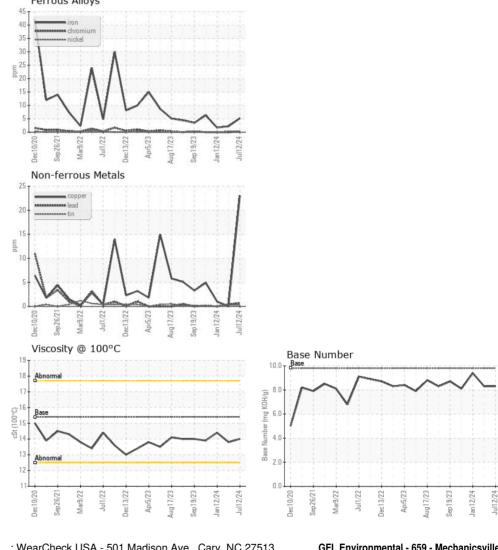
# **OIL ANALYSIS REPORT**





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	14.0	13.8	14.4
GRAPHS						

Ferrous Alloys



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 659 - Mechanicsville Sample No. : GFL0112866 Received : 15 Jul 2024 8280 RICHFOOD RD Lab Number : 06237387 Tested : 17 Jul 2024 Mechanicsville, VA Unique Number : 11126221 Diagnosed : 17 Jul 2024 - Wes Davis US 23116 Test Package : FLEET Contact: ANGELA BARON Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. abaron@gflenv.com T: (804)489-3066 \* - 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) F:

Submitted By: Corbin Umphlet Page 2 of 2