

## **OIL ANALYSIS REPORT**

Sample Rating Trend



### Machine Id

# 913179

#### Component Diesel Engine

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

### 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.

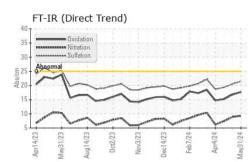
### Fluid Condition

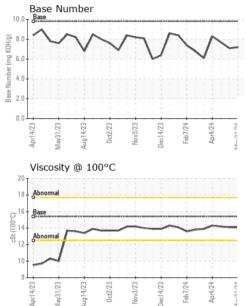
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0123026	GFL0119396	GFL0119406
Sample Date		Client Info		31 May 2024	14 May 2024	24 Apr 2024
Machine Age	hrs	Client Info		3636	3489	3314
Oil Age	hrs	Client Info		0	0	0
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
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	17	12	5
Chromium	ppm	ASTM D5185m	>20	<1	0	0
Nickel	ppm	ASTM D5185m	>4	2	0	<1
Titanium	ppm	ASTM D5185m		<1	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	4	2	2
Lead	ppm	ASTM D5185m	>40	0	<1	0
Copper	ppm	ASTM D5185m	>330	2	<1	0
Tin	ppm	ASTM D5185m	>15	<1	<1	<1
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 0	current 6	history1 9	history2 12
	ppm ppm		0		· · · · ·	
Boron		ASTM D5185m	0	6	9	12
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	6 1	9 0	12 <1
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	6 1 75	9 0 66	12 <1 61
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	6 1 75 <1	9 0 66 <1	12 <1 61 0
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	6 1 75 <1 1062	9 0 66 <1 990	12 <1 61 0 953
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	6 1 75 <1 1062 1282	9 0 66 <1 990 1141	12 <1 61 0 953 1087
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	0 0 60 0 1010 1070 1150	6 1 75 <1 1062 1282 1125	9 0 66 <1 990 1141 1084	12 <1 61 0 953 1087 997
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	6 1 75 <1 1062 1282 1125 1437	9 0 66 <1 990 1141 1084 1273	12 <1 61 0 953 1087 997 1231
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	0 0 60 1010 1070 1150 1270 2060 limit/base	6 1 75 <1 1062 1282 1125 1437 3499	9 0 66 <1 990 1141 1084 1273 3347	12 <1 61 0 953 1087 997 1231 3365
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	0 0 60 1010 1070 1150 1270 2060 limit/base	6 1 75 <1 1062 1282 1125 1437 3499 current	9 0 66 <1 990 1141 1084 1273 3347 history1	12 <1 61 0 953 1087 997 1231 3365 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	6 1 75 <1 1062 1282 1125 1437 3499 current 8	9 0 66 <1 990 1141 1084 1273 3347 history1 6	12 <1 61 0 953 1087 997 1231 3365 history2 4
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 ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	6 1 75 <1 1062 1282 1125 1437 3499 current 8 <	9 0 66 <1 990 1141 1084 1273 3347 history1 6 3	12 <1 61 0 953 1087 997 1231 3365 history2 4 1
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	6 1 75 <1 1062 1282 1125 1437 3499 current 8 <1 6	9 0 66 <1 990 1141 1084 1273 3347 history1 6 3 2	12 <1 61 0 953 1087 997 1231 3365 history2 4 1 3
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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	6 1 75 <1 1062 1282 1125 1437 3499 current 8 <1 6	9 0 66 <1 990 1141 1084 1273 3347 history1 6 3 2 2 history1	12 <1 61 0 953 1087 997 1231 3365 history2 4 1 3 3 <i>h</i> istory2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i>	6 1 75 <1 1062 1282 1125 1437 3499 current 8 <1 6 current 0.7	9 0 66 <1 990 1141 1084 1273 3347 history1 6 3 2 history1 0.6	12 <1 61 0 953 1087 997 1231 3365 history2 4 1 3 3 <i>history2</i> 0.4
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 TS ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 .20 limit/base >3 >20	6 1 75 <1 1062 1282 1125 1437 3499 current 8 <1 6 current 0.7 9.3	9 0 66 <1 990 1141 1084 1273 3347 history1 6 3 3 2 history1 0.6 8.9	12 <1 61 0 953 1087 997 1231 3365 history2 4 1 3 3 <i>history2</i> 0.4 7.4
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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 	6 1 75 <1 1062 1282 1125 1437 3499 <u>current</u> 8 <1 6 <u>current</u> 0.7 9.3 21.5	9 0 66 <1 990 1141 1084 1273 3347 history1 6 3 32 <u>history1</u> 0.6 8.9 20.5	12 <1 61 0 953 1087 997 1231 3365 <b>history2</b> 4 1 3 <b>bistory2</b> 0.4 7.4 19.3



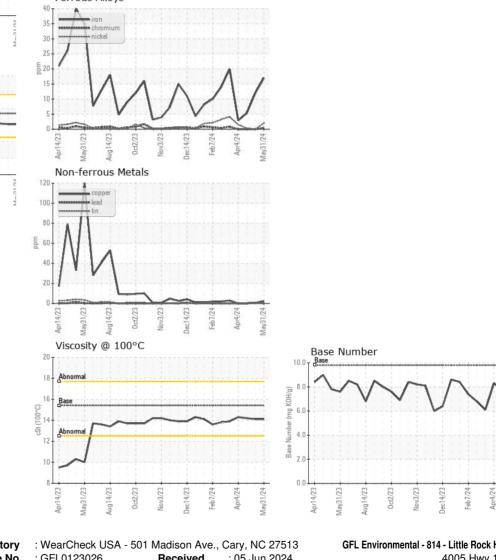
# **OIL ANALYSIS REPORT**





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	14.1	14.1	14.2
GRAPHS						

Ferrous Alloys



Laboratory GFL Environmental - 814 - Little Rock Hauling Sample No. : GFL0123026 Received : 05 Jun 2024 4005 Hwy 161 N. 嶺 Lab Number : 06201081 Tested : 06 Jun 2024 LIttle Rock, AR Unique Number : 11063204 Diagnosed : 09 Jun 2024 - Don Baldridge US 72117 Contact: Brad Koenig Test Package : FLEET Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. bkoenig@gflenv.com \* - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F:

Report Id: GFL814 [WUSCAR] 06201081 (Generated: 06/09/2024 09:31:29) Rev: 1

Submitted By: Nicole Walls Page 2 of 2

May31/24