

### **OIL ANALYSIS REPORT**

#### Sample Rating Trend

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# Machine Id 811043

#### 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.

SAMPLE INFORI	MATION	method	limit/base	current	history 1	history 2
Sample Number		Client Info		GFL0082651	GFL0082652	GFL0082636
Sample Date		Client Info		05 Jul 2023	29 Jun 2023	30 May 2023
Machine Age	hrs	Client Info		5795	5764	5524
Oil Age	hrs	Client Info		5795	5764	5524
Oil Changed	111.5	Client Info		Changed	Changed	Changed
Sample Status		Client Inio		NORMAL	NORMAL	NORMAL
-				NORMAL	NORMAL	
CONTAMINAT	ION	method	limit/base	current	history 1	history 2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history 1	history 2
Iron	ppm	ASTM D5185m	>100	2	9	6
Chromium	ppm	ASTM D5185m	>20	<1	<1	0
Nickel	ppm	ASTM D5185m	>4	<1	0	0
Titanium	ppm	ASTM D5185m		0	<1	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	2	<1	3
Lead	ppm	ASTM D5185m	>40	0	0	0
Copper	ppm	ASTM D5185m	>330	0	<1	<1
Tin	ppm	ASTM D5185m	>15	<1	<1	0
Vanadium	ppm	ASTM D5185m		0	<1	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history 1	history 2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 5	history 1 5	history 2 9
	ppm ppm					
Boron		ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	5	5	9
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	5 0	5 0	9 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	5 0 63	5 0 77	9 0 80
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	5 0 63 <1	5 0 77 <1	9 0 80 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	5 0 63 <1 951 1016 1088	5 0 77 <1 956	9 0 80 0 928
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	5 0 63 <1 951 1016	5 0 77 <1 956 1069	9 0 80 0 928 1087
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	5 0 63 <1 951 1016 1088	5 0 77 <1 956 1069 994	9 0 80 0 928 1087 974
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	5 0 63 <1 951 1016 1088 1312	5 0 77 <1 956 1069 994 1241	9 0 80 0 928 1087 974 1203
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 0 1010 1070 1150 1270 2060	5 0 63 <1 951 1016 1088 1312 4008	5 0 77 <1 956 1069 994 1241 3610	9 0 80 0 928 1087 974 1203 3670
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 0 1010 1070 1150 1270 2060	5 0 63 <1 951 1016 1088 1312 4008 current	5 0 77 <1 956 1069 994 1241 3610 history 1	9 0 80 0 928 1087 974 1203 3670 history 2
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 <b>method</b>	0 0 60 1010 1070 1150 1270 2060 kimit/base >25	5 0 63 <1 951 1016 1088 1312 4008 current 3	5 0 777 <1 956 1069 994 1241 3610 history 1 3	9 0 80 0 928 1087 974 1203 3670 history 2 3
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 kimit/base >25	5 0 63 <1 951 1016 1088 1312 4008 <u>current</u> 3 2	5 0 77 <1 956 1069 994 1241 3610 history 1 3 3 3	9 0 80 0 928 1087 974 1203 3670 history 2 3 4
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 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25	5 0 63 <1 951 1016 1088 1312 4008 current 3 2 4	5 0 77 <1 956 1069 994 1241 3610 history 1 3 3 3 13	9 0 80 0 928 1087 974 1203 3670 history 2 3 4 13
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 20	5 0 63 <1 951 1016 1088 1312 4008 <u>current</u> 3 2 4 4 <u>current</u> 0.1	5 0 777 <1 956 1069 994 1241 3610 history 1 3 3 13 history 1 0.5	9 0 80 0 928 1087 974 1203 3670 history 2 3 4 13 history 2
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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 20	5 0 63 <1 951 1016 1088 1312 4008 current 3 2 4 4 current	5 0 77 <1 956 1069 994 1241 3610 history 1 3 3 13 history 1	9 0 80 0 928 1087 974 1203 3670 history 2 3 4 13 history 2 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 ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i> >3 >20	5 0 63 <1 951 1016 1088 1312 4008 <i>current</i> 3 2 4 <i>current</i> 0.1 4.7	5 0 777 <1 956 1069 994 1241 3610 history 1 3 3 3 13 history 1 0.5 7.4	9 0 80 0 928 1087 974 1203 3670 history 2 3 4 13 history 2 0.4 6.6
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 2060 225 20 220 220 20 3 20 20 3 3 20 20 3 3 20 20 20 20 20 20 20 20 20 20 20 20 20	5 0 63 <1 951 1016 1088 1312 4008 <i>current</i> 3 2 4 0.1 4.7 17.9 <i>current</i>	5 0 77 <1 956 1069 994 1241 3610 history 1 3 3 3 13 history 1 0.5 7.4 19.4 history 1	9 0 80 0 928 1087 974 1203 3670 history 2 3 4 13 history 2 0.4 6.6 19.0 history 2
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 D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 2060 2060 225 20 220 20 20 20 20 20 20 20 20 20 20 20	5 0 63 <1 951 1016 1088 1312 4008 <u>current</u> 3 2 4 4 <u>current</u> 0.1 4.7 17.9	5 0 77 <1 956 1069 994 1241 3610 history 1 3 3 13 13 history 1 0.5 7.4 19.4	9 0 80 0 928 1087 974 1203 3670 history 2 3 4 13 history 2 0.4 6.6 19.0



## **OIL ANALYSIS REPORT**

scalar \*Visual

NONE

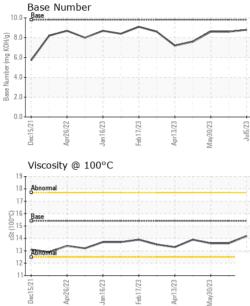
NONE

NONE

NONE

VISUAL

White Metal



	Laborator Sample N		WearCheck USA GFL0082651		501 Madison Ave., Cary, NC 27513 Received : 10 Jul 2023 Diagnosed : 11 Jul 2023 Diagnostician : Wes Davis Fice at 1-800-237-1369. 7025 scope of accreditation. the simple acceptance decision rule (J0			3180 Hwy 63 South Hazen, AR US 72064 Contact: Brad Koenig bkoenig@gflenv.com T:			
		1 [100°C] 1 cst (100°C) 1 1	8 + Abnormal	Feb17/23	Apr13/23	(b)(HO) 6. (b)(HO) 6. (b)(HO) 6. (b)(HO) 6. (c)(HO) 6. (c)(HO	0-	Jan 16/23	April3/23	May30/23	Jul5/23
		1	Viscosity @ 100		Apri 3/23	CZ/SINP 10.	Base Numb	er			
		1 udd	copper 8 6 4								
		1	Non-ferrous Me		Apr13/23 May30/23	Jul5/23					
Jani 16/23	Apr13/23 - May30/23 -		0 0 10 10 10 10								
	<u> </u>	/	Visc @ 100°C GRAPHS Ferrous Alloys	cSt	ASTM D445	15.4	14.2	13.6		13.6	
			FLUID PROP	PERTIES	method	limit/base	current	hist	ory 1	histor	y 2
°C			Free Water	scalar	*Visual	20.2	NEG	NEG		NEG	
-	Ma Ma		Odor Emulsified Water	scalar scalar	*Visual *Visual	NORML >0.2	NORML NEG	NOR NEG		NORM	L
Feb 17/23	Apr13/23 May30/23	3	Appearance	scalar	*Visual	NORML	NORML	NOR		NORM	
			Sand/Dirt	scalar	*Visual	NONE	NONE	NON		NONE	
			Debris	scalar	*Visual	NONE	NONE	NON	E	NONE	
			Silt	scalar	*Visual	NONE	NONE	NON	E	NONE	
			Yellow Metal Precipitate	scalar scalar	*Visual *Visual	NONE NONE	NONE NONE	NON NON		NONE NONE	
			White Metal	scalar	*Visual				-	NONE	