

## **OIL ANALYSIS REPORT**

Sample Rating Trend



## Machine Id 4616M

#### 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.

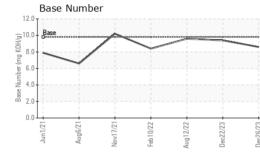
## Fluid Condition

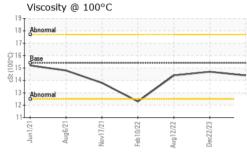
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0105676	GFL0105798	GFL0057305
Sample Date		Client Info		26 Dec 2023	22 Dec 2023	12 Aug 2022
Machine Age	hrs	Client Info		19036	19025	17579
Oil Age	hrs	Client Info		17579	17579	16344
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	0.2
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	5	2	9
Chromium	ppm		>20	0	<1	<1
Nickel	ppm	ASTM D5185m	>4	۲ <1	0	0
Titanium	ppm	ASTM D5185m	~	0	0	0
Silver	ppm	ASTM D5185m	>3	0	0	<1
Aluminum	ppm	ASTM D5185m		5	2	5
Lead	ppm	ASTM D5185m	>40	0	0	0
Copper	ppm	ASTM D5185m		۰ <1	0	2
Tin	ppm	ASTM D5185m	>15	<1	0	<1
Antimony	ppm	ASTM D5185m	>15			
Vanadium		ASTM D5185m		0	0	0
Cadmium	ppm ppm	ASTM D5185m		0	0	0
	ррш	AOTIVI DOTODITI		U	0	0
						In the target of the
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 0	<1	2	6
	ppm ppm	ASTM D5185m		<1 0	2 0	6 0
Boron		ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	<1 0 60	2 0 59	6 0 58
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60 0	<1 0 60 0	2 0 59 0	6 0 58 <1
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	<1 0 60 0 960	2 0 59 0 894	6 0 58 <1 872
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	<1 0 60 0	2 0 59 0 894 1000	6 0 58 <1 872 1061
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	<1 0 60 0 960 1091 1031	2 0 59 0 894 1000 932	6 0 58 <1 872 1061 974
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 60 0 960 1091	2 0 59 0 894 1000	6 0 58 <1 872 1061
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	0 0 60 0 1010 1070 1150	<1 0 60 0 960 1091 1031	2 0 59 0 894 1000 932 1161 3091	6 0 58 <1 872 1061 974 1178 2908
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 60 0 960 1091 1031 1207	2 0 59 0 894 1000 932 1161	6 0 58 <1 872 1061 974 1178
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 0 1010 1070 1150 1270 2060	<1 0 60 0 960 1091 1031 1207 3081	2 0 59 0 894 1000 932 1161 3091	6 0 58 <1 872 1061 974 1178 2908
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	<1 0 60 0 960 1091 1031 1207 3081 current	2 0 59 0 894 1000 932 1161 3091 history1	6 0 58 <1 872 1061 974 1178 2908 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 1010 1070 1150 1270 2060 <b>limit/base</b> >25	<1 0 60 0 960 1091 1031 1207 3081 <i>current</i> 3	2 0 59 0 894 1000 932 1161 3091 history1 4	6 0 58 <1 872 1061 974 1178 2908 history2 2
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 1010 1070 1150 1270 2060 <b>limit/base</b> >25	<1 0 60 960 1091 1031 1207 3081 <u>current</u> 3 <	2 0 59 0 894 1000 932 1161 3091 history1 4 36	6 0 58 <1 872 1061 974 1178 2908 history2 2 2 2
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 <b>limit/base</b> >25 >20	<1 0 60 960 1091 1031 1207 3081 <u>current</u> 3 <1 0	2 0 59 0 894 1000 932 1161 3091 history1 4 36 2	6 0 58 <1 872 1061 974 1178 2908 history2 2 2 2 2 6
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 2060 225 >25	<1 0 60 960 1091 1031 1207 3081 current 3 <1 0 current	2 0 59 0 894 1000 932 1161 3091 history1 4 36 2 2 history1	6 0 58 <1 872 1061 974 1178 2908 history2 2 2 2 6 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 TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 >20 imit/base >3 >20	<1 0 60 960 1091 1031 1207 3081 <i>current</i> 3 <1 0 <i>current</i>	2 0 59 0 894 1000 932 1161 3091 history1 4 36 2 history1 0.1	6 0 58 <1 872 1061 974 1178 2908 history2 2 2 2 6 history2 0.5
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 imit/base >25 >20 imit/base >3 >20	<1 0 60 960 1091 1031 1207 3081 <i>current</i> 3 <1 0 <i>current</i> 0.2 5.1	2 0 59 0 894 1000 932 1161 3091 history1 4 36 2 history1 0.1 4.4	6 0 58 <1 872 1061 974 1178 2908 history2 2 2 2 2 2 6 <i>history2</i> 0.5 7.9
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 20 225 20 <b>imit/base</b> >3 >20 >30	<1 0 60 0 960 1091 1031 1207 3081 <u>current</u> 3 3 <1 0 <u>current</u> 0.2 5.1 18.1	2 0 59 0 894 1000 932 1161 3091 history1 4 36 2 <b>history1</b> 0.1 4.4 17.5	6 0 58 <1 872 1061 974 1178 2908 <b>history2</b> 2 2 6 <b>history2</b> 0.5 7.9 20.8
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 225 20 220 220 220 330 200 330	<1 0 60 0 960 1091 1031 1207 3081  current 3 <10 0 current 0.2 5.1 18.1 current	2 0 59 0 894 1000 932 1161 3091 history1 4 36 2 history1 0.1 4.4 17.5 history1	6 0 58 <1 872 1061 974 1178 2908 history2 2 2 2 2 2 6 6 history2 0.5 7.9 20.8 bistory2



# **OIL ANALYSIS REPORT**





VISUAL		method	limit/base	current	history1	history
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	history
Visc @ 100°C	cSt	ASTM D445	15.4	14.4	14.7	14.4
GRAPHS						
Ferrous Alloys						
iron 🔨						
50 nickel						
10						
20						
10						
2 2 2	22	22	23			
Jun1/21 Aug6/21 Vov17/21	Feb 10/22	Aug12/22 Dec22/23	Dec26/23			
Non-ferrous Metals	_	A I				
10 copper						
8 - Bessesses lead						
un lin						
6 -						
6						
4						
6						
	b10/22	0 <sup>12/22</sup>	c26/23			
4 12/LinuL 12/LinuL	Feb 10/22	Aug12/22	Dec26/23			
	Feb10/22	Aug12/22 Dec22/23		Base Number		
4 0 1 1 1 1 1 1 1 1 1 1 1 1 1	Feb10/22	Aug1222	12.0	1 1		
<sup>4</sup> <sup>2</sup> <sup>0</sup> <sup>1</sup> <sup>1</sup> <sup>1</sup> <sup>1</sup> <sup>1</sup> <sup>1</sup> <sup>1</sup> <sup>1</sup> <sup>1</sup> <sup>1</sup>	Feb10/22	Aug 12/22	12.0	Base Number		
4 2 0 12/Ling 12/Ling Viscosity @ 100°C 19 Abnomal 17	Feb 10/22	Aug12/22	12.0	1 1		
4 2 0 12/Ling 12/Ling Viscosity @ 100°C 19 Abnomal 17	Feb10/22	Aug1222	12.0	1 1		
Viscosity @ 100°C	Feb10/22	Aug12/22 Dec22/23	12.0 10.0 9	1 1		

0.0

Jun1/21

Aug6/21.

Nov17/21

Dec26/23 -

: 28 Dec 2023

: 28 Dec 2023



Test Package : FLEET Certificate L2367 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)

Nov17/21.

Feb10/22

: WearCheck USA - 501 Madison Ave., Cary, NC 27513

Recieved

Diagnosed

Aug12/22 .

Diagnostician : Wes Davis

Dec22/23

Aug6/21.

: GFL0105676

: 06046730

12 11

Laboratory

Sample No.

Lab Number

Unique Number : 10807338

Jun1/21

Aug12/22

Dec26/23

Dec22/23

Feb10/22.