

# **OIL ANALYSIS REPORT**

#### Sample Rating Trend





## Component

### Diesel Engine

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

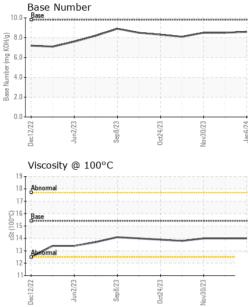
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0103512	GFL0103498	GEL 0094772
Sample Date		Client Info		06 Jan 2024	19 Dec 2023	30 Nov 2023
Machine Age	hrs	Client Info		9041	8907	8774
Oil Age	hrs	Client Info		419	285	152
Oil Changed		Client Info		N/A	Not Changd	N/A
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT		method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method		NEG	NEG	NEG
Glycol		WC Method	20.2	NEG	NEG	NEG
	0			-	-	
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm		>110	0	8	6
Chromium	ppm	ASTM D5185m	>4	0	<1	<1
Nickel	ppm		>2	0	0	<1
Titanium	ppm	ASTM D5185m		0	0	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>25	<1	2	2
Lead	ppm		>45	0	0	0
Copper	ppm	ASTM D5185m	>85	0	<1	1
Tin	ppm	ASTM D5185m	>4	0	0	<1
Vanadium	ppm	ASTM D5185m		0	0	<1
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 17	history1 18	history2 21
	ppm ppm					
Boron		ASTM D5185m	0 0 60	17	18 0 92	21
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	17 0	18 0 92 0	21 0 91 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	17 0 83 0 898	18 0 92 0 895	21 0 91
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	17 0 83 0 898 1022	18 0 92 0 895 1061	21 0 91 <1 956 1062
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	17 0 83 0 898 1022 926	18 0 92 0 895 1061 871	21 0 91 <1 956 1062 1034
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	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	17 0 83 0 898 1022 926 1227	18 0 92 0 895 1061 871 1180	21 0 91 <1 956 1062 1034 1258
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	17 0 83 0 898 1022 926	18 0 92 0 895 1061 871	21 0 91 <1 956 1062 1034
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	17 0 83 0 898 1022 926 1227	18 0 92 0 895 1061 871 1180	21 0 91 <1 956 1062 1034 1258
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	17 0 83 0 898 1022 926 1227 2943	18 0 92 0 895 1061 871 1180 3007	21 0 91 <1 956 1062 1034 1258 2920
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	17 0 83 0 898 1022 926 1227 2943 current	18 0 92 0 895 1061 871 1180 3007 history1	21 0 91 <1 956 1062 1034 1258 2920 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 <b>method</b>	0 0 60 1010 1070 1150 1270 2060 Limit/base	17 0 83 0 898 1022 926 1227 2943 current 3	18 0 92 0 895 1061 871 1180 3007 history1 3	21 0 91 <1 956 1062 1034 1258 2920 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 <b>method</b> ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 Limit/base	17 0 83 0 898 1022 926 1227 2943 current 3 <	18 0 92 0 895 1061 871 1180 3007 history1 3 2	21 0 91 <1 956 1062 1034 1258 2920 history2 4 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 0 1010 1070 1150 1270 2060 <b>limit/base</b> >30	17 0 83 0 898 1022 926 1227 2943 current 3 < 11	18 0 92 0 895 1061 871 1180 3007 history1 3 2 11	21 0 91 <1 956 1062 1034 1258 2920 history2 4 2 2 11
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	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> >30 20 <b>limit/base</b> >3	17 0 83 0 898 1022 926 1227 2943 current 3 <1 11 11	18 0 92 0 895 1061 871 1180 3007 history1 3 2 11 1 history1	21 0 91 <1 956 1062 1034 1258 2920 history2 4 2 11 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 TS ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>limit/base</b> >30 >20 <b>limit/base</b>	17 0 83 0 898 1022 926 1227 2943 current 3 <1 11 11 current 0.1	18 0 92 0 895 1061 871 1180 3007 history1 3 2 11 1 history1 0.2	21 0 91 <1 956 1062 1034 1258 2920 history2 4 2 11 1 history2 0.1
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 >30 200 limit/base >30	17 0 83 0 898 1022 926 1227 2943 <i>current</i> 3 <1 11 <i>current</i> 0.1 5.5	18 0 92 0 895 1061 871 1180 3007 history1 3 2 11 3 2 11 .2 6.5	21 0 91 <1 956 1062 1034 1258 2920 history2 4 2 2 11 history2 0.1 5.7
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 D7624	0 0 0 1010 1070 1150 1270 2060 2060 2060 2060 200 200 200 200 20	17 0 83 0 898 1022 926 1227 2943 Current 3 <1 11 Current 0.1 5.5 18.1	18 0 92 0 895 1061 871 1180 3007 history1 3 2 11 3 2 11 0.2 6.5 18.3 history1	21 0 91 <1 956 1062 1034 1258 2920 history2 4 2 2 11 history2 0.1 5.7 17.8 history2
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 <b>imit/base</b> >30 <b>imit/base</b> >3 20	17 0 83 0 898 1022 926 1227 2943 <b>current</b> 3 <1 11 11 <b>current</b> 0.1 5.5 18.1	18 0 92 0 895 1061 871 1180 3007 history1 3 2 11 3 2 11 0.2 6.5 18.3	21 0 91 <1 956 1062 1034 1258 2920 history2 4 2 11 history2 0.1 5.7 17.8



# **OIL ANALYSIS REPORT**

VISUAL



	VICCIAL				edinerit.	. motory i	
	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/bas	se current	history1	history2
	Visc @ 100°C	cSt	ASTM D445	15.4	14.0	14.0	14.0
	GRAPHS						
	Ferrous Alloys						
	35 - iron chromium						
	30 - mickel						
	25 - <u>5</u> 20 -						
	15						
	10	/					
	5		レ	1			
	0		a manufacture de la constante d	1			
	Dec12/22 - Jun2/23 -	Sep27/23 .	Vov10/23	Dec13/23.			
	Deci Jur Aug1	Sep 2	Nov	Dec			
	Non-ferrous Metal	s					
	10 copper						
	8 - Bassanse lead						
	6- E						
	4						
	2		~				
			m	~			
	Dec12/22 Jun2/23 Aug18/23	Sep27/23	Nov10/23	Dec19/23			
			No	De			
	Viscosity @ 100°C				Base Numbe	r	
	18 - Abnormal				10.0 Base		
	17-				8.0		
				Base Number (md KOH/d)			
0.000	G 16 Base 15 <sup>35</sup> 14				° 6.0		
0	ž <sub>14</sub>			mber	4.0		
				Na se			
	13 Abnormal		1 1	à	2.0-		
	11				0.0		
	Dec12/22	0ct24/23	Nov30/23	Jan6/24	Dec12/22 - Jun2/23	Sep8/23 . 0ct24/23 .	Nov30/23
	Jun Sep	0ct2	Nov3	Jan	Dec1	Sep Oct2	Nov3
	· MaarChask USA	01 Mad	oon Ave C-		E10 CEL and	ronmontal 067 Tra	fford (Discust Lisue
	: WearCheck USA - 5 : GFL0103512	Recieve		ary, NC 27 Jan 2024	GIS GIL ENVI	ronmental - 867 - Tra 1130	County Line I
		Diagnos		Jan 2024		1100	Trafford, /
er	: 10829141	Diagnos		s Davis			US 351
e	: FLEET	-				onathan Williar	
aart a	pontaat Customar Saru	ion at 1 C	000 007 1060	0		ionothon willio	ma@aflonva



Test Package : FLEET Certificate L2367 To discuss this sample report, contact Customer Service at 1-800-237-1369. jonathan.williams@gflenv.com \* - 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)

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Submitted By: see also GFL868 - Chelsea Bryan

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