

## **OIL ANALYSIS REPORT**

Sample Rating Trend



Machine Id **413023** Component

Diesel Engine

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

SAMPLE INFORMATION method

### 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

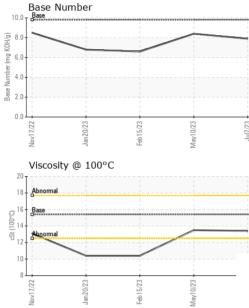
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORM		method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0067730	GFL0067672	GFL0067749
Sample Date		Client Info		07 Jul 2023	10 May 2023	15 Feb 2023
Machine Age	hrs	Client Info		0	0	0
Oil Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				NORMAL	NORMAL	ABNORMAL
CONTAMINATI	ON	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
		and the set	Line it de la com		In the transmission	history O
WEAR METALS	5	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>120	12	13	58
Chromium	ppm	ASTM D5185m	>20	<1	<1	2
Nickel	ppm	ASTM D5185m	>5	<1	<1	6
Titanium	ppm	ASTM D5185m	>2	0	0	<1
Silver	ppm	ASTM D5185m	>2	0	<1	0
Aluminum	ppm	ASTM D5185m	>20	3	<1	21
Lead	ppm	ASTM D5185m	>40	0	0	<1
Copper	ppm	ASTM D5185m	>330	9	44	207
Tin	ppm	ASTM D5185m	>15	<1	<1	6
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	<1	3	78
Barium	ppm	ASTM D5185m	0	0	0	0
Molybdenum	ppm	ASTM D5185m	60	58	61	116
Manganese	ppm	ASTM D5185m		<1	<1	5
Magnesium	ppm	ASTM D5185m	1010	870	938	696
	1-1-					
Calcium	ppm	ASTM D5185m	1070	1002	1092	1367
Phosphorus		ASTM D5185m ASTM D5185m	1150	965	1092 948	1367 715
Phosphorus Zinc	ppm	ASTM D5185m		965 1140	1092	1367 715 879
Phosphorus Zinc	ppm ppm	ASTM D5185m ASTM D5185m	1150	965	1092 948	1367 715
Phosphorus Zinc	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	1150 1270	965 1140	1092 948 1188	1367 715 879 2113 history2
Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	1150 1270 2060 limit/base	965 1140 2815	1092 948 1188 3013 history1 9	1367 715 879 2113
Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	1150 1270 2060 limit/base	965 1140 2815 current	1092 948 1188 3013 history1	1367 715 879 2113 history2
Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	1150 1270 2060 limit/base >25	965 1140 2815 current 5	1092 948 1188 3013 history1 9	1367 715 879 2113 history2 ▲ 71
Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1150 1270 2060 limit/base >25	965 1140 2815 current 5 0	1092 948 1188 3013 history1 9 3	1367 715 879 2113 history2 ▲ 71 1
Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1150 1270 2060 <i>limit/base</i> >25 >20	965 1140 2815 current 5 0 4	1092 948 1188 3013 history1 9 3 8	1367 715 879 2113 history2 ▲ 71 1 58
Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1150 1270 2060 imit/base >25 >20 imit/base >4	965 1140 2815 current 5 0 4 current	1092 948 1188 3013 history1 9 3 8 8 history1	1367 715 879 2113 history2 ▲ 71 1 58 history2
Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1150 1270 2060 imit/base >25 >20 imit/base >4	965 1140 2815 current 5 0 4 current 0.4	1092 948 1188 3013 history1 9 3 8 8 history1 0.3	1367 715 879 2113 history2 ▲ 71 1 58 history2 0.5
Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm TS ppm ppm ppm % Abs/cm Abs/.1mm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1150 1270 2060 limit/base >25 >20 limit/base >4 >20	965 1140 2815 <u>current</u> 5 0 4 <u>current</u> 0.4 7.3	1092 948 1188 3013 history1 9 3 8 history1 0.3 7.0	1367 715 879 2113 history2 ▲ 71 1 58 history2 0.5 11.3
Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm TS ppm ppm ppm % Abs/cm Abs/.1mm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7844	1150 1270 2060 <b>limit/base</b> >25 >20 <b>limit/base</b> >4 >20 >30	965 1140 2815 current 5 0 4 current 0.4 7.3 19.9	1092 948 1188 3013 history1 9 3 8 history1 0.3 7.0 19.7	1367 715 879 2113 history2 ↑71 1 58 history2 0.5 11.3 24.1

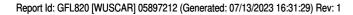


# **OIL ANALYSIS REPORT**

VISUAL



	VISUAL		methou	iiiiii/base	Current	TISLOTYT	Thstoryz
	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
/23		scalar	*Visual	NORML	NORML	NORML	NORML
Feb 15/23 May10/23	Appearance Odor	scalar	*Visual	NORML	NORML	NORML	NORML
2	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
	Free Water		*Visual	20.2	NEG	NEG	NEG
		scalar					
	FLUID PROPE Visc @ 100°C	CSt	method ASTM D445	limit/base	current 13.4	history1 13.5	history2
	GRAPHS	COL	A311VI D445	13.4	13.4	13.5	10.4
	Ferrous Alloys						
	<sup>60</sup> T	1					
Feb15/23 - May10/23 -	50 - iron	$\sim$	   				
Feb 15/23 May 10/23	needen nickel	$\backslash$					
	40						
	<u></u> 30 -		1				
	20-						
	10-						
	and the second	and and a state of the state of	No Belleview				
		53	2	53			
	Vov17/22 Jan 20/23	Feb15/23	May10/23	Jul7/23			
	2		Ma	-			
	Non-ferrous Meta	als					
	copper		1				
	250 - management lead						
	200 -						
	틆 150 -						
	8130-						
	100						
	50 -						
		5/23	)/23	1/23			
	Nov17/22 Jan20/23	Feb 15/23	May10/23	Jul7/23			
	Z Viscosity @ 100°		2				
	<sup>19</sup> T	-		10.0	Base Number		
	18 - Abnormal			10.0	0		
	17-			<sub>5</sub> 8.0			
	16 Base			KOH			
	(2.15 00) 14 53 13 - Magormal			E 6.0			
	ぢ13 Alapormal						
	12		/	ase N			
				<u>2.0</u>	-		
	10-			0.0			
		5/23 -	)/23 -	1/23	1/22	1/23 -	. 5)/23 .
	Nov17/22 Jan 20/23	Feb 15/23	May10/23	Jul7/23	Nov17/22 Jan20/23	Feb15/23	May10/23
Laborat Sample Lab Nur Unique N	No. : GFL0067730   mber : 05897212	501 Madi Receive Diagnos Diagnos	d :13. ed :13.	ry, NC 27513 Jul 2023 Jul 2023 s Davis	3 GFL Envi	3700	20 - Joplin Haulir O West 7th Stre Joplin, M US 6480 act: James Jarre



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Contact/Location: James Jarrett - GFL820