

## **OIL ANALYSIS REPORT**

Sample Rating Trend





Machine Id 913174 Component

#### Component Diesel Engine Fluid PETRO CANADA DURON SHP 15W40 (--- LTR)

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

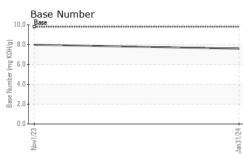
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

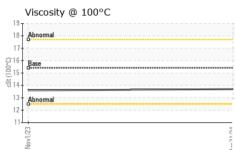
SAMPLE INFORM	ΛΑΤΙΟΝ	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0093822	GFL0093841	
Sample Date		Client Info		31 Jan 2024	01 Nov 2023	
Machine Age	hrs	Client Info		1739	1141	
Oil Age	hrs	Client Info		600	0	
Oil Changed		Client Info		Changed	Changed	
Sample Status				NORMAL	NORMAL	
CONTAMINATI	ON	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	
Water		WC Method	>0.2	NEG	NEG	
Glycol		WC Method		NEG	NEG	
WEAR METALS	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>120	16	20	
Chromium	ppm	ASTM D5185m		<1	<1	
Nickel	ppm	ASTM D5185m	>5	3	4	
Titanium	ppm	ASTM D5185m		ر 1	0	
Silver	ppm	ASTM D5185m	>2	0	<1	
Aluminum	ppm		>20	۰ <1	2	
Lead	ppm	ASTM D5185m	>40	0	<1	
Copper	ppm	ASTM D5185m	>330	3	9	
Tin	ppm	ASTM D5185m	>15	1	1	
Vanadium	ppm	ASTM D5185m		<1	0	
Cadmium	ppm	ASTM D5185m		0	0	
	pp			U	0	
ADDITIVES	pp	method	limit/base	current	history1	history2
ADDITIVES Boron	ppm		limit/base			
		method		current	history1	history2
Boron	ppm	method ASTM D5185m	0	current 2	history1 8	history2
Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	0	current 2 0	history1 8 0	history2 
Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	current 2 0 59	history1 8 0 65	history2  
Boron Barium Molybdenum Manganese	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	current 2 0 59 <1	history1 8 0 65 1	history2   
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	current 2 0 59 <1 920	history1 8 0 65 1 971	history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270	current           2           0           59           <1           920           996           977           1160	history1 8 0 65 1 971 1084 985 1246	history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	Current 2 0 59 <1 920 996 977	history1 8 0 65 1 971 1084 985	history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270	current           2           0           59           <1           920           996           977           1160	history1 8 0 65 1 971 1084 985 1246	history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	method 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	current           2           0           59           <1           920           996           977           1160           2710           current           5	history1         8         0         65         1         971         1084         985         1246         2744         history1         9	history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method 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	Current 2 0 59 <1 920 996 977 1160 2710 Current	history1         8         0         65         1         971         1084         985         1246         2744         history1         9         2	history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 <b>limit/base</b>	current           2           0           59           <1           920           996           977           1160           2710           current           5	history1         8         0         65         1         971         1084         985         1246         2744         history1         9	history2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 <b>limit/base</b>	current           2           0           59           <1           920           996           977           1160           2710           current           5           5	history1         8         0         65         1         971         1084         985         1246         2744         history1         9         2	history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm	method         ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >20	Current         2         0         59         <1         920         996         977         1160         2710         current         5         5         5         5         5         5         0.6	history1         8         0         65         1         971         1084         985         1246         2744         history1         9         2         3         history1         0.6	history2 history2
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	method           ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 imit/base >20	Current         2         0         59         <1         920         996         977         1160         2710         current         5         5         <1         current         0.6         8.6	history1         8         0         65         1         971         1084         985         1246         2744         history1         9         2         3         history1         0.6         8.6	history2 history2 history2 history2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm	method         ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >20	current           2           0           59           <1           920           996           977           1160           2710           current           5           5           5           <1           current           0.6	history1         8         0         65         1         971         1084         985         1246         2744         history1         9         2         3         history1         0.6	history2 history2 history2 history2 history2
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	method           ASTM D5185m           ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 imit/base >20	Current         2         0         59         <1         920         996         977         1160         2710         current         5         5         <1         current         0.6         8.6	history1         8         0         65         1         971         1084         985         1246         2744         history1         9         2         3         history1         0.6         8.6	history2   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	method           ASTM D5185m           ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 20 20 20 20 20 20 20 20 20 20 20 20	Current         2         0         59         <1         920         996         977         1160         2710         current         5         5         5         5         5         5         5         5         5         5         5         5         5         5         5         5         5         6         8.6         19.8	history1         8         0         65         1         971         1084         985         1246         2744         history1         9         2         3         history1         0.6         8.6         20.4	history2  history2            history2



# **OIL ANALYSIS REPORT**

VISUAL





aaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa		VISUAL		method	limit/base	current	nistory i	nistory2
		White Metal	scalar	*Visual	NONE	NONE	NONE	
		Yellow Metal	scalar	*Visual	NONE	NONE	NONE	
		Precipitate	scalar	*Visual	NONE	NONE	NONE	
		Silt	scalar	*Visual	NONE	NONE	NONE	
		Debris						
			scalar	*Visual	NONE	NONE	NONE	
	*	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	
	Jan 31/24	Appearance	scalar	*Visual	NORML	NORML	NORML	
	- a	Odor	scalar	*Visual	NORML	NORML	NORML	
		Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	
		Free Water	scalar	*Visual		NEG	NEG	
		FLUID PROPE	DTIEC	method	limit/base	ourropt	history1	history
						current		history2
		Visc @ 100°C	cSt	ASTM D445	15.4	13.7	13.6	
		GRAPHS						
		Ferrous Alloys						
	~	iron						
	C 10.	**************** chromium						
	1	15						
		E						
		튭 10						
		5 -						
			Parameters (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	J				
		0						
		Nov1/23			Jan 31/24			
		Nov			Jan3			
		Non-ferrous Metals	5					
		10 <sub>T</sub> :						
		copper						
		8 - measurement lead						
		6						
		E .						
		4						
		2						
		0			Managaran			
		Nov1/23			Jan 31/24			
		Nov			Jan3			
		Viscosity @ 100°C				Dees Number		
	19 T			10.0	Base Number			
	18 - Abnormal							
	17							
		~16			KOH			
		Base			E 6.0			
		000015 3 14			nber			
					0.0 8.0 0.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			
		13 Abnormal			ee 2.0			
		12						
		11						
		Nov1/23			Jan 31/24	Nov1/23		
		Nov			Jan	Nov		
4	Laboratory	: WearCheck USA - 501				GFL Env	vironmental - 95	
NAB	Sample No.	: GFL0093822	Recei	ived : 08	3 Feb 2024	GFL Env		E8257 WIS-
	Sample No. Lab Number	: GFL0093822 : 06083270	Recei Teste	ived : 08 d : 08	3 Feb 2024 3 Feb 2024			E8257 WIS-{ V LONDON, V
TENCIAL LABORATORY	Sample No.	: GFL0093822 : <mark>06083270</mark> : 10870715	Recei	ived : 08 d : 08	3 Feb 2024			E8257 WIS-{ V LONDON, V US 5496

\* - 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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