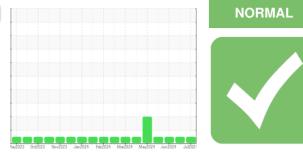


## **OIL ANALYSIS REPORT**

Sample Rating Trend





Component Diesel Engine Fluid 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.

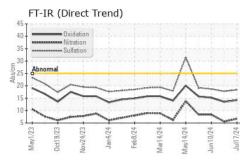
### Fluid Condition

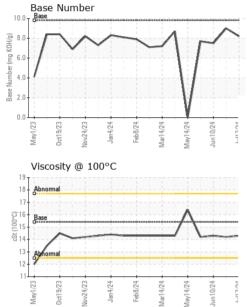
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

				current	, , , , , , , , , , , , , , , , , , ,	-
Sample Number		Client Info		GFL0122589	GFL0122579	GFL0117925
Sample Date		Client Info		17 Jul 2024	25 Jun 2024	10 Jun 2024
Machine Age	hrs	Client Info		3436	3295	3188
Oil Age	hrs	Client Info		248	107	0
Oil Changed		Client Info		Not Changd	Not Changd	Changed
Sample Status				NORMAL	NORMAL	NORMAL
•			11 1. 11			
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	c	method	limit/base	current	history1	history2
	3					
Iron	ppm		>120	3	10	6
Chromium	ppm	ASTM D5185m	>20	0	2	<1
Nickel	ppm	ASTM D5185m	>5	0	0	0
Titanium	ppm	ASTM D5185m	>2	<1	1	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	2	1	5
Lead	ppm	ASTM D5185m	>40	0	0	0
Copper	ppm	ASTM D5185m	>330	<1	<1	1
Tin	ppm	ASTM D5185m	>15	0	0	<1
Vanadium	ppm	ASTM D5185m		0	<1	<1
Cadmium	ppm	ASTM D5185m		0	0	<1
ADDITIVES		method				history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 4	history1 3	history2 2
	ppm ppm		0			
Boron		ASTM D5185m	0	4	3	2
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	4 0	3 0	2 0
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	4 0 58 0	3 0 59	2 0 65
Boron Barium Molybdenum	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	4 0 58	3 0 59 <1 1034	2 0 65 <1
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	4 0 58 0 983 1112	3 0 59 <1	2 0 65 <1 1012 1142
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	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	4 0 58 0 983 1112 1082	3 0 59 <1 1034 1170 1109	2 0 65 <1 1012 1142 1008
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	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	4 0 58 0 983 1112 1082 1334	3 0 59 <1 1034 1170 1109 1400	2 0 65 <1 1012 1142 1008 1302
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 1010 1070 1150 1270 2060	4 0 58 0 983 1112 1082 1334 3765	3 0 59 <1 1034 1170 1109 1400 3994	2 0 65 <1 1012 1142 1008 1302 3363
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	4 0 58 0 983 1112 1082 1334 3765 current	3 0 59 <1 1034 1170 1109 1400 3994 history1	2 0 65 <1 1012 1142 1008 1302 3363 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	4 0 58 0 983 1112 1082 1334 3765 current 3	3 0 59 <1 1034 1170 1109 1400 3994 history1 3	2 0 65 <1 1012 1142 1008 1302 3363 history2 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	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 0 1010 1070 1150 1270 2060 limit/base >25	4 0 58 0 983 1112 1082 1334 3765 current 3 <1	3 0 59 <1 1034 1170 1109 1400 3994 history1 3 <1	2 0 65 <1 1012 1142 1008 1302 3363 history2 4 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	4 0 58 0 983 1112 1082 1334 3765 current 3	3 0 59 <1 1034 1170 1109 1400 3994 history1 3	2 0 65 <1 1012 1142 1008 1302 3363 history2 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	4 0 58 0 983 1112 1082 1334 3765 current 3 <1	3 0 59 <1 1034 1170 1109 1400 3994 history1 3 <1	2 0 65 <1 1012 1142 1008 1302 3363 history2 4 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	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	4 0 58 0 983 1112 1082 1334 3765 current 3 < 1 3	3 0 59 <1 1034 1170 1109 1400 3994 history1 3 < 1 2	2 0 65 <1 1012 1142 1008 1302 3363 history2 4 2 7
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 imit/base >20	4 0 58 0 983 1112 1082 1334 3765 current 3 <1 3 current	3 0 59 <1 1034 1170 1109 1400 3994 history1 3 <1 2 history1	2 0 65 <1 1012 1142 1008 1302 3363 history2 4 2 7 7 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	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 imit/base >20	4 0 58 0 983 1112 1082 1334 3765 current 3 < 1 3 current 0.1	3 0 59 <1 1034 1170 1109 1400 3994 history1 3 <1 2 history1 0.1	2 0 65 <1 1012 1142 1008 1302 3363 history2 4 2 7 history2 0.2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >20	4 0 58 0 983 1112 1082 1334 3765 current 3 	3 0 59 <1 1034 1170 1109 1400 3994 history1 3 3 <1 2 history1 0.1 5.6	2 0 65 <1 1012 1142 1008 1302 3363 history2 4 2 7 history2 0.2 8.4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAI	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 220 20 20 20 20 20 20 20 20 20 20 20	4 0 58 0 983 1112 1082 1334 3765 current 3 	3 0 59 <1 1034 1170 1109 1400 3994 history1 3 <1 2 history1 0.1 5.6 17.8 history1	2 0 65 <1 1012 1142 1008 1302 3363 history2 4 2 7 history2 0.2 8.4 18.7 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 TS ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25 <b>limit/base</b> >4 >20 >30	4 0 58 0 983 1112 1082 1334 3765 <b>current</b> 3 <1 3 <1 3 <b>current</b> 0.1 6.7 18.4	3 0 59 <1 1034 1170 1109 1400 3994 history1 3 <1 2 history1 0.1 5.6 17.8	2 0 65 <1 1012 1142 1008 1302 3363 history2 4 2 7 history2 0.2 8.4 18.7



# **OIL ANALYSIS REPORT**





	VISUAL		method		current		history2
	White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Λ	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
Feb8/24 Mar14/24 May14/24 Jun10/24 Jul17/24	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Feb8/24 Mar14/24 May14/24 Jun10/24 Jun17/24	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
	Free Water	scalar	*Visual		NEG	NEG	NEG
$\sim$	FLUID PROPE	RTIES	method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445	15.4	14.3	14.2	14.3
	GRAPHS						
	Ferrous Alloys						
Y	120 iron						
Feb8/24 Mar14/24 May14/24 Jun10/24	100- normium		1				
Ma Mi	80-		- A				
:	قِ 60-						
	40						
	$\mathbf{N}$						
Α	20			~			
/ \	23 <u>2</u> 3 0 24 <u>2</u> 3 <u>0</u>	24	24	24			
	May1/23 0ct19/23 Nov24/23 Jan4/24	Feb8/24	Mar14/24 May14/24 Jun10/24	Jul17/24			
	Non-ferrous Metals						
Feb8/24 Mar14/24 May14/24 Jun10/24	25 T						
Re May	20 - copper		4				
Fr Maa Jur L.	20 - time time time time time time time time		and the second se				
Fr Ma Jun Lur	20tin		A				
rg Ma Ma	20 - time time time time time time time time						
na Ma Ma Ma	20 - Lead						
ra Ma Ma	20						
r Ma Ma	20 IS ID 5 0						
τ Μα Μα	20 IS ID 5 0	Feb8/24	ar14/24	ul17/24			
ra Ma Ma Uuru L	20 15 15 0 CZ/I/keW CZ/KeW CZ/KeW	Feb8/24	Mar/4/24	Juli7/24			
ra Ma Ma Urun L	20 IS ID 5 0	Feb8/24	Mar 14/24 May 14/24		Base Number		
F. Ma Μa	20 15 15 15 15 15 15 15 15 15 15	Feb3/24	Mary 14/24		Base Number		
F. Ma Μa	20 15 15 15 15 10 5 0 CZ/hZNON Viscosity @ 100°C 19	Feb8/24	Mar/4/24	10.0	Base Number		1
F. Ma Ma	20 15 16 10 5 0 EZ/JAW W Viscosity @ 100°C	Feb.0.24	Mar 4/24 May14/24	10.0	Base Number		1,-^
,π Ma Ma Urur	20 15 16 10 5 0 EZ/JAW W Viscosity @ 100°C	Feb8/24	Mart 4/24 May 14/24 Juni 10/24	10.0	Base Number		1/^
,π Ma Ma Urur	20 15 15 15 15 15 15 15 15 15 15	Feb0/24	Mar 4/24 / / / / / / / / / / / / / / / / /	10.0	Base Number		
F Ma Juru L	20 15 15 0 CZ/hEW Viscosity @ 100°C 19 18 Abnomal 17 16 Base Abnomal	Feb 8/24	Mari4/24 May14/24	0.0 (B) 8.0 (B) HOY (B) 6.0 (B) aq	Base Number		
F Ma Ma Juru L	20 15 16 10 5 0 15 15 10 10 5 0 15 15 10 10 10 10 10 10 10 10 10 10	Feb.0.24	Mair 4/24 Mair 4	10.0 (E)HOY DU 4.0 aquiny see 2.0	Base Number		
F Ma Ma υπυ L	20 15 16 10 5 0 C2/ FZ/ FZ/ FZ/ FZ/ FZ/ FZ/ FZ/ FZ/ FZ/ FZ			10.0 (0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(	Base	$\sim$	424
F Ma Ma υυ L	20 15 15 0 CZ/hEW Viscosity @ 100°C 19 18 Abnomal 17 16 Base Abnomal		Mar 14/24 Mar 14/24 Mar 14/24 Mar 14/24 May 14	10.0 (E)HOY DU 4.0 aquiny see 2.0	Base Number Oct 13/123	Jan4.24	May14/24 May14 May14/24 May14/24 May14/24 May14
F Ma Ma Jur	20 15 16 10 5 0 C2/ FZ/ FZ/ FZ/ FZ/ FZ/ FZ/ FZ/ FZ/ FZ/ FZ			10.0 (0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(	Base	$\sim$	May14/24 http://www.antoine.com/an
Laboratory	20 15 16 10 5 0 C2/ FZ/ FZ/ FZ/ FZ/ FZ/ FZ/ FZ/ FZ/ FZ/ FZ	Feb.8/24	+2751/kew +2751/kew on Ave., Cary	10.0 (6)(HO) N (6.0 4)(1)(1)(1)(1)(1)(1)(1)(1)(1)(1)(1)(1)(1)	Base EZI/New GFL Env	+72 hup +72 hup ironmental - 892 - Pa	auls Valley Hauling
Laboratory Sample No.	20 15 15 15 15 15 15 15 15 15 15	hore the second	+Zi-FileW +Zi-FileW on Ave., Cary ived : 18	10.0 (b)(b) B(b) (b)(b)(b)(b)(b)(b)(b)(b)(b)(b)(b)(b)(b)(	Base EZI/New GFL Env		auls Valley Hauling ASAW STREET
Laboratory Sample No. Lab Number	20 15 15 15 15 15 15 15 15 15 15	hore the second	hor Ave., Cary ived : 18	10.0 (b)(b)(b)(b)(b)(b)(b)(b)(b)(b)(b)(b)(b)(	GFL Env		auls Valley Hauling ASAW STREET auls Valley, OK
Laboratory Sample No.	20 15 15 15 15 15 15 15 15 15 15	hore the second	hor Ave., Cary ived : 18	10.0 (b)(b) B(b) (b)(b)(b)(b)(b)(b)(b)(b)(b)(b)(b)(b)(b)(	GFL Env	+279-477 +579-94-4 ironmental - 892 - Pa 1910 S CHICKA P	auls Valley Hauling ASAW STREET

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

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Contact/Location: Tony Graham - GFL892 Page 2 of 2

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