

## **OIL ANALYSIS REPORT**

Sample Rating Trend



Machine Id 718002

#### 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.

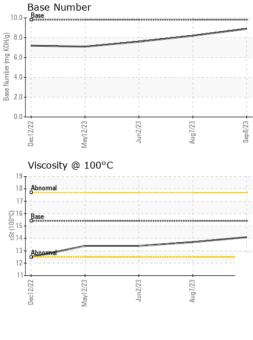
## Fluid Condition

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

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0078707	GFL0086367	GFL0086356
Sample Date		Client Info		08 Sep 2023	18 Aug 2023	07 Aug 2023
Machine Age	hrs	Client Info		8196	8056	7958
Oil Age	hrs	Client Info		140	98	570
Oil Changed		Client Info		Not Changd	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>110	6	8	4
Chromium	ppm	ASTM D5185m	>4	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	<1	0	<1
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>25	3	3	3
Lead	ppm	ASTM D5185m	>45	0	0	<1
Copper	ppm	ASTM D5185m	>85	<1	<1	<1
Tin	ppm	ASTM D5185m	>4	0	<1	<1
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 28	history1 29	history2 10
	ppm ppm		0			
Boron		ASTM D5185m	0	28	29	10
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	28 0	29 0	10 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	28 0 98	29 0 82	10 0 60
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	28 0 98 <1	29 0 82 <1	10 0 60 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	28 0 98 <1 926	29 0 82 <1 942	10 0 60 <1 952
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	28 0 98 <1 926 1135	29 0 82 <1 942 1127	10 0 60 <1 952 1082
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 1010 1070 1150	28 0 98 <1 926 1135 1031	29 0 82 <1 942 1127 1041	10 0 60 <1 952 1082 1017
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	28 0 98 <1 926 1135 1031 1248	29 0 82 <1 942 1127 1041 1279	10 0 60 <1 952 1082 1017 1242
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	28 0 98 <1 926 1135 1031 1248 3239	29 0 82 <1 942 1127 1041 1279 3920	10 0 60 <1 952 1082 1017 1242 3727
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	28 0 98 <1 926 1135 1031 1248 3239 current	29 0 82 <1 942 1127 1041 1279 3920 history1	10 0 60 <1 952 1082 1017 1242 3727 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	28 0 98 <1 926 1135 1031 1248 3239 current 4	29 0 82 <1 942 1127 1041 1279 3920 history1 3	10 0 60 <1 952 1082 1017 1242 3727 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 ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 <b>limit/base</b> >30	28 0 98 <1 926 1135 1031 1248 3239 current 4 4	29 0 82 <1 942 1127 1041 1279 3920 history1 3 3 3	10 0 60 <1 952 1082 1017 1242 3727 history2 4 1
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> >30	28 0 98 <1 926 1135 1031 1248 3239 current 4 4 4 15	29 0 82 <1 942 1127 1041 1279 3920 history1 3 3 8	10 0 60 <1 952 1082 1017 1242 3727 history2 4 1 3
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 <b>Imit/base</b> >30 20 <b>Imit/base</b> >33	28 0 98 <1 926 1135 1031 1248 3239 current 4 4 15 current	29 0 82 <1 942 1127 1041 1279 3920 history1 3 3 8 history1	10 0 60 <1 952 1082 1017 1242 3727 history2 4 1 3 3 <i>history2</i>
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>Imit/base</b> >30 20 <b>Imit/base</b> >33	28 0 98 <1 926 1135 1031 1248 3239 current 4 4 15 current 0.1	29 0 82 <1 942 1127 1041 1279 3920 history1 3 3 8 history1 	10 0 60 <1 952 1082 1017 1242 3727 history2 4 1 3 3 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 ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >30 >20 imit/base >3 >20	28 0 98 <1 926 1135 1031 1248 3239 current 4 4 15 current 0.1 5.7	29 0 82 <1 942 1127 1041 1279 3920 history1 3 3 8 history1 	10 0 60 <1 952 1082 1017 1242 3727 history2 4 1 3 3 history2 0.2 5.8
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 TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>imit/base</b> >30 20 <b>imit/base</b> >3 >20 >3	28 0 98 <1 926 1135 1031 1248 3239 current 4 4 15 current 0.1 5.7 17.9	29 0 82 <1 942 1127 1041 1279 3920 history1 3 3 8 <u>history1</u> 	10 0 60 <1 952 1082 1017 1242 3727 history2 4 1 3 3 history2 0.2 5.8 18.1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	0 0 0 1010 1070 1150 1270 2060 <b>imit/base</b> >30 220 <b>imit/base</b> >30 >20 30	28 0 98 <1 926 1135 1031 1248 3239 Current 4 4 4 15 Current 0.1 5.7 17.9 Current	29 0 82 <1 942 1127 1041 1279 3920 history1 3 3 3 8 history1   history1	10 0 60 <1 952 1082 1017 1242 3727 history2 4 1 3 3 history2 0.2 5.8 18.1 history2



# **OIL ANALYSIS REPORT**



Test Package	: WearCheck USA - : GFL0078707 : 05953792 : 10655005 : FLEET	son Ave., Ca 1 : 18 : ed : 19 : ician : We	Sep 2023 Sep 2023 s Davis	GFL enviro	GFL environmental - 867 - Trafford (Blount Hauling 1130 County Line Ro Trafford, AL US 35172 Contact: Jonathan Williams		
	13 - Abberna 12 -	Jun2/23	Aug7/23	рш 6.0 рш 9.0 на 4.0 еед 2.0 с 2.0	Dec12/22 May 12/23	Jun223 -	Aug7/23
	18 - Abnormal						
	0er12/20 0er12/20 0er12/20 0er12/20		Aug18/23	Sep 8/23	Base Number		
	Non-ferrous Meta		A				
			ug18/23	Sep 8/23			
Aug7/23 +	Ferrous Alloys						
	Visc @ 100°C	cSt	ASTM D445	15.4	14.1		13.7
				limit/base	current		NEG history2
	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Aug7/23 Sep8/23	Appearance	scalar	*Visual				NORML NORML
	_ Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
							NONE
	Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
	Laboratory Sample No. Lab Number Unique Number Test Package s sample report,	Precipitate Sitt Debris Sand/Dirt Appearance Odor Emulsified Water Free Water Full PROPE Visc @ 100°C GRAPHS Ferrous Alloys Ferrous Alloys Onon-ferrous Meta Onon-ferrous Meta Output Viscosity @ 100°C Viscosity @ 100°C Sample No. Laboratory Sample No. Laboratory Test Package Sample report, contact Customer Server	Precipitate scalar Sitt scalar Sand/Dirt scalar Appearance scalar Odor scalar Emulsified Water scalar Free Water scalar Free Water scalar Free Water scalar Free Water scalar Frerous Alloys On - ferrous Metals On - ferrous - ferrous - for - for - ferrous - for - for - ferrous - for	Precipitate scalar *Visual Sitt scalar *Visual Debris scalar *Visual Sand/Dirt scalar *Visual Appearance scalar *Visual Codor scalar *Visual Emulsified Water scalar *Visual Free Water scalar *Visual Free Water scalar *Visual Ferrous Alloys Ferrous Alloys 0 0 0 0 0 0 0 0 0 0 0 0 0	Precipitate scalar Visual NONE Sitt scalar Visual NONE Sand/Dirt scalar Visual NONE Appearance scalar Visual NORML Odor scalar Visual NORML Odor scalar Visual NORML Odor scalar Visual NORML Ddor scalar Visual NORM Ddor scalar Visual NO	Precipitate scalar 'Visual NONE NONE Sitt scalar 'Visual NONE NONE Sand/Dirt scalar 'Visual NONE NONE Sand/Dirt scalar 'Visual NORML NORML Appearance scalar 'Visual NORML NORML Odor scalar 'Visual NORML N	Precipitate scalar "Visual NONE NONE NONE NONE Siti scalar "Visual NONE NONE NONE NONE Sand/Dirt scalar "Visual NONE NONE NONE Sand/Dirt scalar "Visual NONE NONE NONE NONE NONE Appearance scalar "Visual NORML N

Submitted By: see also GFL868 - Chelsea Bryan