

# **OIL ANALYSIS REPORT**

SAMPLE INFORMATION method





812044

Machine Id

# Component Diesel Engine Fluid

PETRO CANADA DURON SHP 15W40 (8 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.

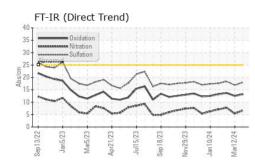
### Fluid Condition

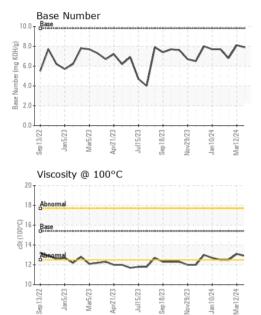
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

				051 044 5000		
Sample Number		Client Info		GFL0115698	GFL0115754	GFL0112296
Sample Date		Client Info		09 Apr 2024	12 Mar 2024	16 Feb 2024
Machine Age	hrs	Client Info		7351	7121	7002
Oil Age	hrs	Client Info		349 Not Observed	119 Nat Ohan ad	522
Oil Changed		Client Info		Not Changd	Not Changd	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>110	8	4	11
Chromium	ppm	ASTM D5185m	>4	0	0	<1
Nickel	ppm	ASTM D5185m	>2	0	0	0
Titanium	ppm	ASTM D5185m		0	0	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>25	2	2	3
Lead	ppm	ASTM D5185m	>45	0	<1	0
Copper	ppm	ASTM D5185m	>85	0	0	<1
Tin	ppm	ASTM D5185m	>4	<1	0	<1
Vanadium	ppm	ASTM D5185m		0	0	<1
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	method ASTM D5185m	limit/base	current 12	history1 15	history2 3
	ppm ppm	ASTM D5185m ASTM D5185m				
Boron		ASTM D5185m	0	12	15	3
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	12 0	15 0	3 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	12 0 62	15 0 58	3 0 59
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	12 0 62 <1	15 0 58 <1	3 0 59 <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	12 0 62 <1 875	15 0 58 <1 840	3 0 59 <1 841
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	12 0 62 <1 875 1046	15 0 58 <1 840 993	3 0 59 <1 841 995
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 ASTM D5185m	0 0 60 0 1010 1070 1150	12 0 62 <1 875 1046 964	15 0 58 <1 840 993 949	3 0 59 <1 841 995 937
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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270	12 0 62 <1 875 1046 964 1149	15 0 58 <1 840 993 949 1138	3 0 59 <1 841 995 937 1107
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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	12 0 62 <1 875 1046 964 1149 3149	15 0 58 <1 840 993 949 1138 3241	3 0 59 <1 841 995 937 1107 2691
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	12 0 62 <1 875 1046 964 1149 3149 current	15 0 58 <1 840 993 949 1138 3241 history1	3 0 59 <1 841 995 937 1107 2691 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> ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	12 0 62 <1 875 1046 964 1149 3149 current 4	15 0 58 <1 840 993 949 1138 3241 history1 3	3 0 59 <1 841 995 937 1107 2691 history2 0
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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 <b>limit/base</b>	12 0 62 <1 875 1046 964 1149 3149 current 4 0	15 0 58 <1 840 993 949 1138 3241 history1 3 0	3 0 59 <1 841 995 937 1107 2691 history2 0 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 0 1010 1070 1150 1270 2060 <b>limit/base</b> >30	12 0 62 <1 875 1046 964 1149 3149 current 4 0 <1	15 0 58 <1 840 993 949 1138 3241 history1 3 0 1	3 0 59 <1 841 995 937 1107 2691 history2 0 1 1 <1
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 <b>Imit/base</b> >30 -20	12 0 62 <1 875 1046 964 1149 3149 current 4 0 <1	15 0 58 <1 840 993 949 1138 3241 history1 3 0 1 1 history1	3 0 59 <1 841 995 937 1107 2691 history2 0 1 <1 <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 ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >30 limit/base >20	12 0 62 <1 875 1046 964 1149 3149 <u>current</u> 4 0 <1 <u>current</u>	15 0 58 <1 840 993 949 1138 3241 history1 3 0 1 history1 0.2	3 0 59 <1 841 995 937 1107 2691 history2 0 1 <1 <1 history2 0.5
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 imit/base >30 220 imit/base >3 >20	12 0 62 <1 875 1046 964 1149 3149 current 4 0 <1 current 0.4 6.7	15 0 58 <1 840 993 949 1138 3241 history1 3 0 1 history1 0.2 5.4	3 0 59 <1 841 995 937 1107 2691 history2 0 1 1 <1 history2 0.5 7.8
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 ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 2060 2060 200 200 200 200 20	12 0 62 <1 875 1046 964 1149 3149 current 4 0 <1 current 0.4 6.7 18.0	15 0 58 <1 840 993 949 1138 3241 history1 3 0 1 history1 0.2 5.4 16.9 history1	3 0 59 <1 841 995 937 1107 2691 history2 0 1 <1 <1 history2 0.5 7.8 18.4 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	12 0 62 <1 875 1046 964 1149 3149 <u>current</u> 4 0 <1 <u>current</u> 0.4 6.7 18.0	15 0 58 <1 840 993 949 1138 3241 history1 3 0 1 1 history1 0.2 5.4 16.9	3 0 59 <1 841 995 937 1107 2691 history2 0 1 <1 <1 history2 0.5 7.8 18.4



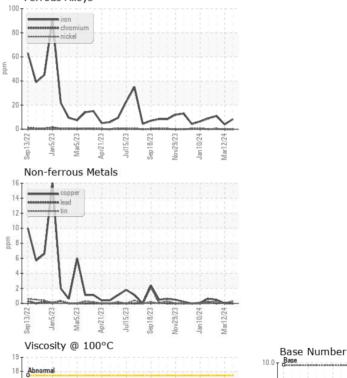
# **OIL ANALYSIS REPORT**

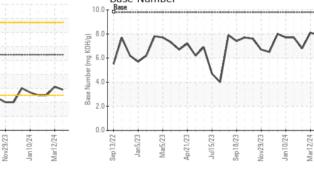




VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	12.9	13.1	12.5
GRAPHS						

Ferrous Alloys





Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 010 - Stockbridge Sample No. : GFL0115698 Received : 10 Apr 2024 1280 Rum Creek Parkway Lab Number : 06143813 Tested : 11 Apr 2024 Stockbridge, GA Unique Number : 10968621 Diagnosed : 11 Apr 2024 - Wes Davis US 30281 Test Package : FLEET Contact: JOSHUA TINKER Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. joshuatinker@gflenv.com \* - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: F:

n18/73

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

17

16 cSt (100°C)

12

10

Sep 13/22

an 5/73

Aar5/23

nr71/72

Report Id: GFL010 [WUSCAR] 06143813 (Generated: 04/11/2024 04:41:53) Rev: 1

Submitted By: JOSHUA TINKER Page 2 of 2