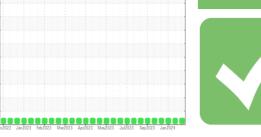


## **OIL ANALYSIS REPORT**

SAMPLE INFORMATION method

#### NORMAL



### Machine Id 420052-482

Diesel Engine

PETRO CANADA DURON SHP 15W40 (600 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.

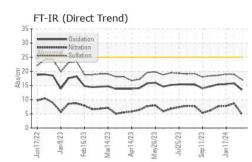
#### Fluid Condition

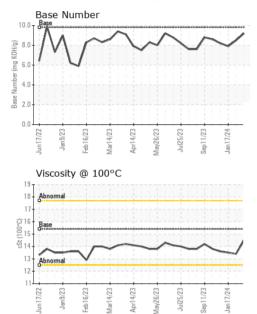
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Number		Client Info		GFL0118655	GFL0110592	GFL0110609
Sample Date		Client Info		07 May 2024	27 Feb 2024	17 Jan 2024
Machine Age	hrs	Client Info		7535	600	7249
Oil Age	hrs	Client Info		200	600	150
Oil Changed		Client Info		Not Changd	Changed	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>6.0	<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	>100	5	20	13
Chromium	ppm	ASTM D5185m	>20	0	1	<1
Nickel	ppm	ASTM D5185m	>2	0	1	2
Titanium	ppm	ASTM D5185m		0	<1	<1
Silver	ppm	ASTM D5185m	>2	<1	0	0
Aluminum	ppm	ASTM D5185m	>25	2	6	2
Lead	ppm	ASTM D5185m	>40	0	<1	1
Copper	ppm	ASTM D5185m	>330	18	10	7
Tin	ppm	ASTM D5185m	>15	<1	<1	1
Vanadium	ppm	ASTM D5185m		0	<1	<1
Cadmium	ppm	ASTM D5185m		0	<1	<1
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVEO		methou	IIIIII/Dase	current	nistory i	nistoryz
Boron	ppm	ASTM D5185m	0	2	2	<1
	ppm ppm					
Boron		ASTM D5185m	0	2	2	<1
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	2 0	2 0	<1
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	2 0 57	2 0 65	<1 1 64
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	2 0 57 1	2 0 65 <1	<1 1 64 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	2 0 57 1 974	2 0 65 <1 981	<1 1 64 1 996
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	2 0 57 1 974 1058	2 0 65 <1 981 1011	<1 1 64 1 996 994
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	2 0 57 1 974 1058 1056	2 0 65 <1 981 1011 1081	<1 1 64 1 996 994 939
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	2 0 57 1 974 1058 1056 1244	2 0 65 <1 981 1011 1081 1283	<1 1 64 1 996 994 939 1273
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 1010 1070 1150 1270 2060	2 0 57 1 974 1058 1056 1244 3575	2 0 65 <1 981 1011 1081 1283 3198	<1 1 64 1 996 994 939 1273 3000
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	2 0 57 1 974 1058 1056 1244 3575 current	2 0 65 <1 981 1011 1081 1283 3198 history1	<1 1 64 1 996 994 939 1273 3000 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	2 0 57 1 974 1058 1056 1244 3575 current 4	2 0 65 <1 981 1011 1081 1283 3198 history1 10	<1 1 64 1 996 994 939 1273 3000 history2 7
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 1010 1070 1150 1270 2060 kimit/base	2 0 57 1 974 1058 1056 1244 3575 current 4 4	2 0 65 <1 981 1011 1081 1283 3198 history1 10 4	<1 1 64 1 996 994 939 1273 3000 history2 7 0
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> >25	2 0 57 1 974 1058 1056 1244 3575 current 4 4 4 4	2 0 65 <1 981 1011 1081 1283 3198 history1 10 4 9	<1 1 64 1 996 994 939 1273 3000 history2 7 0 7 0 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 <b>Imit/base</b> >25	2 0 57 1 974 1058 1056 1244 3575 current 4 4 4 4 <1 current	2 0 65 <1 981 1011 1081 1283 3198 history1 10 4 9 9 history1	<1 1 64 1 996 994 939 1273 3000 history2 7 0 7 0 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 ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 Limit/base >20	2 0 57 1 974 1058 1056 1244 3575 current 4 4 4 -1 current 0.1	2 0 65 <1 981 1011 1081 1283 3198 history1 10 4 9 <u>history1</u> 0.3	<1 1 64 1 996 994 939 1273 3000 history2 7 0 7 0 7 0 0 7 history2 0.3
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 <i>limit/base</i> >25 >20 <i>limit/base</i> >3 >20	2 0 57 1 974 1058 1056 1244 3575 <i>current</i> 4 4 4 4 <1 <i>current</i> 0.1 4.8	2 0 65 <1 981 1011 1081 1283 3198 history1 10 4 9 <u>history1</u> 0.3 8.7	<1 1 64 1 996 994 939 1273 3000 history2 7 0 7 0 7 0 0 7 history2 0.3 7.8
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 ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>imit/base</b> >25 <b>imit/base</b> >3 >20	2 0 57 1 974 1058 1056 1244 3575 <u>current</u> 4 4 4 <1 <1 <u>current</u> 0.1 4.8 17.1	2 0 65 <1 981 1011 1081 1283 3198 history1 10 4 9 <u>history1</u> 0.3 8.7 18.9	<1 1 64 1 996 994 939 1273 3000 history2 7 0 7 0 7 0 7 0 7 10 7 10 7 10 13 19.0
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 D7844 *ASTM D7844	0 0 0 1010 1070 1150 2260 225 220 220 imit/base >3 >20 >30 >30	2 0 57 1 974 1058 1056 1244 3575 current 4 4 4 4 4 3575 current 0.1 4.8 17.1 current	2 0 65 <1 981 1011 1081 1283 3198 history1 10 4 9 history1 0.3 8.7 18.9 history1	<1 1 64 1 996 994 939 1273 3000 history2 7 0 7 0 7 0 0.3 7 kistory2 0.3 7.8 19.0 history2



# **OIL ANALYSIS REPORT**

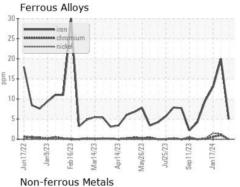


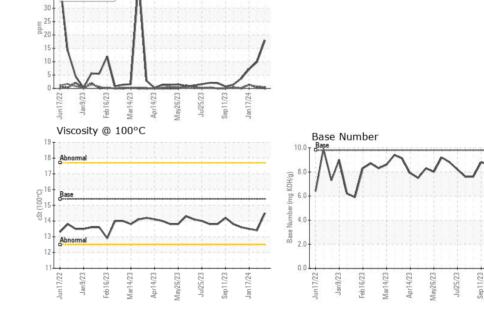


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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	14.5	13.4	13.5
GRAPHS						

45

40 35





Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 166 - Phenix City Sample No. : GFL0118655 Received : 13 May 2024 18 Old Brickyard Rd Lab Number : 06176704 Tested : 14 May 2024 Phenix City, AL Unique Number : 11022757 Diagnosed : 14 May 2024 - Wes Davis US 36869 Test Package : FLEET Contact: EDWARD CASHMAN Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. ecashman@gflenv.com \* - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F:

Report Id: GFL166 [WUSCAR] 06176704 (Generated: 05/14/2024 10:33:57) Rev: 1

Submitted By: DARRIN WRIGHT

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Jan 17/24