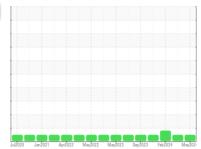


# **OIL ANALYSIS REPORT**

Sample Rating Trend



**NORMAL** 



Machine Id 525013-7004

Component

Diesel Engine

PETRO CANADA DURON SHP 15W40 (--- L

### DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil.

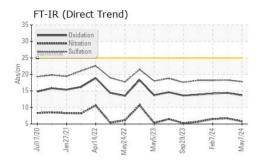
#### **Fluid Condition**

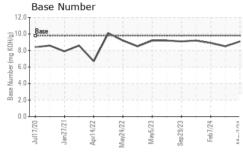
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

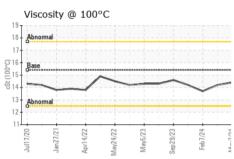
LTR)		Jul2020 Jan	2021 Apr2022 May20.	22 May2023 Sep2023 Feb20	24 May202	
SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0091868	GFL0112767	GFL0103867
Sample Date		Client Info		07 May 2024	13 Feb 2024	07 Feb 2024
Machine Age	mls	Client Info		535855	16363	16359
Oil Age	mls	Client Info		465348	0	0
Oil Changed	11113	Client Info		Not Changd	Changed	Not Changd
Sample Status		Chefit iiilo		NORMAL	NORMAL	ABNORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel	IOIV	WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method	<b>70.</b> L	NEG	NEG	NEG
WEAR METALS	2	method	limit/base	current	history1	history2
Iron		ASTM D5185m	>110	13	41	49
Chromium	ppm	ASTM D5185m		\square 1	3	<1
Nickel	ppm	ASTM D5185m	>4	<1	0	0
Titanium	ppm		>2	<1	<1	<1
Silver	ppm	ASTM D5185m ASTM D5185m	>2	0	0	0
	ppm		>25	3	7	0
Aluminum	ppm	ASTM D5185m ASTM D5185m			0	43
Lead	ppm		>45	<1 2		
Copper	ppm	ASTM D5185m			2	15
Tin	ppm	ASTM D5185m	>4	<1	<1	<1
Antimony	ppm	ASTM D5185m				0
Vanadium	ppm	ASTM D5185m		<1	0	0
O = -1!		AOTAL DELOC		4	0	0
Cadmium	ppm	ASTM D5185m		<1	0	0
Cadmium ADDITIVES	ppm	ASTM D5185m method	limit/base	<1 current	history1	history2
	ppm		0	current	history1 5	-
ADDITIVES Boron Barium		method ASTM D5185m ASTM D5185m	0	current 1 0	history1 5 0	history2 11 0
ADDITIVES Boron Barium Molybdenum	ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	current 1 0 60	history1 5 0 54	history2 11 0 2
ADDITIVES  Boron  Barium  Molybdenum  Manganese	ppm ppm	method ASTM D5185m ASTM D5185m	0 0 60 0	current 1 0 60 <1	history1  5 0 54 <1	history2 11 0 2
ADDITIVES  Boron  Barium  Molybdenum  Manganese  Magnesium	ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	current  1 0 60 <1 950	history1  5  0  54  <1  854	history2 11 0 2 1 60
ADDITIVES  Boron  Barium  Molybdenum  Manganese  Magnesium  Calcium	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	current  1 0 60 <1 950 1075	history1  5  0  54  <1  854  926	history2  11  0  2  1  60  2993
ADDITIVES  Boron  Barium  Molybdenum  Manganese  Magnesium  Calcium  Phosphorus	ppm ppm ppm ppm	method  ASTM D5185m	0 0 60 0 1010 1070 1150	current  1 0 60 <1 950 1075 1054	history1  5  0  54  <1  854  926  986	history2  11  0  2  1  60  2993  958
ADDITIVES  Boron  Barium  Molybdenum  Manganese  Magnesium  Calcium  Phosphorus  Zinc	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	current  1 0 60 <1 950 1075	history1  5  0  54  <1  854  926	history2  11  0  2  1  60  2993
ADDITIVES  Boron  Barium  Molybdenum  Manganese  Magnesium  Calcium  Phosphorus	ppm ppm ppm ppm ppm ppm	method  ASTM D5185m	0 0 60 0 1010 1070 1150	current  1 0 60 <1 950 1075 1054	history1  5  0  54  <1  854  926  986	history2  11  0  2  1  60  2993  958
ADDITIVES  Boron  Barium  Molybdenum  Manganese  Magnesium  Calcium  Phosphorus  Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270	current  1 0 60 <1 950 1075 1054 1256	history1  5  0  54  <1  854  926  986  1150	history2  11  0  2  1  60  2993  958  1123
ADDITIVES  Boron  Barium  Molybdenum  Manganese  Magnesium  Calcium  Phosphorus  Zinc  Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	method  ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	current  1 0 60 <1 950 1075 1054 1256 3714	history1  5  0  54  <1  854  926  986  1150  2808	history2  11  0  2  1  60  2993  958  1123  4543
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	current  1 0 60 <1 950 1075 1054 1256 3714  current	history1  5 0 54 <1 854 926 986 1150 2808 history1	history2  11 0 2 1 60 2993 958 1123 4543 history2
ADDITIVES  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	current  1 0 60 <1 950 1075 1054 1256 3714  current	history1  5 0 54 <1 854 926 986 1150 2808 history1 10	history2  11 0 2 11 60 2993 958 1123 4543 history2 2
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 limit/base	current  1 0 60 <1 950 1075 1054 1256 3714  current 5	history1  5 0 54 <1 854 926 986 1150 2808 history1 10 2	history2  11  0  2  1 60 2993 958 1123 4543 history2 2 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >30	current  1 0 60 <1 950 1075 1054 1256 3714  current 5 0 5	history1  5 0 54 <1 854 926 986 1150 2808 history1 10 2 6	history2  11 0 2 11 60 2993 958 1123 4543 history2 2 4 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method  ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >30	current  1 0 60 <1 950 1075 1054 1256 3714  current  5 0 5	history1  5  0 54  <1 854  926 986 1150 2808  history1  10  2  6  history1	history2  11  0  2  1 60 2993 958 1123 4543 history2  2  4 <1
ADDITIVES 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	method ASTM D5185m  method ASTM D5185m	0 0 60 0 1010 1150 1270 2060 limit/base >30 limit/base >3	current  1 0 60 <1 950 1075 1054 1256 3714  current  5 0 5	history1  5  0  54  <1  854  926  986  1150  2808  history1  10  2  6  history1  0.2	history2  11  0  2  1 60 2993 958 1123 4543 history2  2  4 <1 history2 0.2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm	method  ASTM D5185m  method  ASTM D5185m ASTM D5185m  *ASTM D5185m ASTM D5185m  *ASTM D5185m ASTM D5185m ASTM D5185m  ASTM D5185m ASTM D5185m ASTM D5185m  *ASTM D5185m ASTM D76185m  *ASTM D76185m  *ASTM D76185m  *ASTM D76185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >30 >20 limit/base	current  1 0 60 <1 950 1075 1054 1256 3714  current 5 0 5  current 0.1 5.8	history1  5 0 54 <1 854 926 986 1150 2808 history1 10 2 6 history1 0.2 6.7	history2  11 0 2 11 60 2993 958 1123 4543 history2 2 4 <1 history2 0.2 6.5
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm	method  ASTM D5185m  method  ASTM D5185m ASTM D5185m  *ASTM D5185m ASTM D5185m  *ASTM D5185m ASTM D5185m ASTM D5185m  ASTM D5185m ASTM D5185m ASTM D5185m  *ASTM D5185m ASTM D76185m  *ASTM D76185m  *ASTM D76185m  *ASTM D76185m	0 0 0 0 1010 1070 1150 1270 2060 limit/base >30 >20 limit/base >3 >20 >3	current  1 0 60 <1 950 1075 1054 1256 3714 current  5 0 5 current 0.1 5.8 17.8	history1  5  0  54  <1  854  926  986  1150  2808  history1  10  2  6  history1  0.2  6.7  18.3	history2  11  0  2  1  60  2993  958  1123  4543  history2  2  4  <1  history2  0.2  6.5  18.2



## **OIL ANALYSIS REPORT**





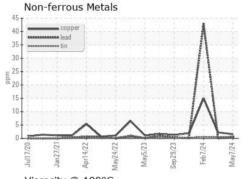


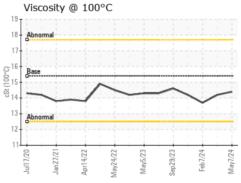
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
<b>Emulsified Water</b>	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

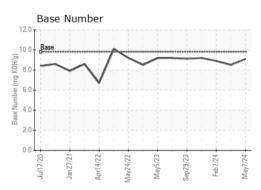
FLUID PROPERTIES		method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.4	14.2	13.7

#### **GRAPHS**

# Ferrous Alloys Jul17/20











Certificate 12367

Laboratory

Sample No. Lab Number : 06178191 Unique Number : 11029517 Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0091868

Received : 13 May 2024 **Tested** Diagnosed

: 14 May 2024 : 14 May 2024 - Wes Davis

GFL Environmental - 654 - Richmond Hauling 11800 Lewis Road Chester, VA

US 23831 Contact: Jimmy Mayes jmayes@gflenv.com

To discuss this sample report, contact Customer Service at 1-800-237-1369. \* - 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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