

# **OIL ANALYSIS REPORT**

#### Sample Rating Trend



# Machine Id 413026

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.

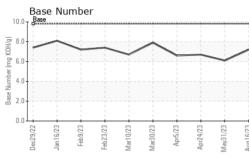
### Fluid Condition

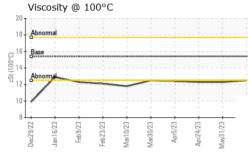
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0088773	GFL0082878	GFL0062386
Sample Date		Client Info		16 Aug 2023	31 May 2023	24 Apr 2023
Machine Age	hrs	Client Info		1939	1779	1495
Oil Age	hrs	Client Info		160	1142	858
Oil Changed		Client Info		Not Changd	Changed	Not Changd
Sample Status				NORMAL	ATTENTION	ATTENTION
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<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	>120	14	13	7
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>5	<1	<1	0
Titanium	ppm	ASTM D5185m	>2	<1	0	0
Silver	ppm	ASTM D5185m	>2	0	<1	0
Aluminum	ppm	ASTM D5185m	>20	3	6	<1
Lead	ppm	ASTM D5185m	>40	1	<1	0
Copper	ppm	ASTM D5185m	>330	10	32	30
Tin	ppm	ASTM D5185m	>15	<1	1	<1
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		ام م داخ م مور			المرتبع المراجع	history2
ADDITIVES		method	limit/base	current	history1	TIIStOLYZ
Boron	ppm	ASTM D5185m	0	17	nistory i 9	17
	ppm ppm					
Boron		ASTM D5185m	0	17	9	17
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	17 0	9 0	17 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	17 0 57	9 0 57	17 0 56
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	17 0 57 <1	9 0 57 <1	17 0 56 <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	17 0 57 <1 768	9 0 57 <1 775	17 0 56 <1 662
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	17 0 57 <1 768 1106	9 0 57 <1 775 1113	17 0 56 <1 662 1039
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	17 0 57 <1 768 1106 905	9 0 57 <1 775 1113 904	17 0 56 <1 662 1039 868
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	17 0 57 <1 768 1106 905 1099	9 0 57 <1 775 1113 904 1175	17 0 56 <1 662 1039 868 1051
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	17 0 57 <1 768 1106 905 1099 3250	9 0 57 <1 775 1113 904 1175 2983	17 0 56 <1 662 1039 868 1051 2688
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	17 0 57 <1 768 1106 905 1099 3250 current	9 0 57 <1 775 1113 904 1175 2983 history1	17 0 56 <1 662 1039 868 1051 2688 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 ASTM D5185m <b>method</b>	0 0 60 1010 1070 1150 1270 2060	17 0 57 <1 768 1106 905 1099 3250 current 4	9 0 57 <1 775 1113 904 1175 2983 history1 4	17 0 56 <1 662 1039 868 1051 2688 history2 5
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 limit/base >25	17 0 57 <1 768 1106 905 1099 3250 current 4 5	9 0 57 <1 775 1113 904 1175 2983 history1 4 6	17 0 56 <1 662 1039 868 1051 2688 history2 5 3
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> >25	17 0 57 <1 768 1106 905 1099 3250 current 4 5 10	9 0 57 <1 775 1113 904 1175 2983 history1 4 6 14	17 0 56 <1 662 1039 868 1051 2688 history2 5 3 8
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>limit/base</b> >25	17 0 57 <1 768 1106 905 1099 3250 current 4 5 10 current	9 0 57 <1 775 1113 904 1175 2983 history1 4 6 14 14 history1	17 0 56 <1 662 1039 868 1051 2688 history2 5 3 8 8
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 >25 >20 limit/base	17 0 57 <1 768 1106 905 1099 3250 current 4 5 10 current 0.2	9 0 57 <1 775 1113 904 1175 2983 history1 4 6 14 6 14 0.3	17 0 56 <1 662 1039 868 1051 2688 history2 5 3 8 8 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 ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i> >4 >20	17 0 57 <1 768 1106 905 1099 3250 <i>current</i> 4 5 10 <i>current</i> 0.2 5.7	9 0 57 <1 775 1113 904 1175 2983 history1 4 6 14 6 14	17 0 56 <1 662 1039 868 1051 2688 history2 5 3 8 8 history2 0.2 6.5
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 ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>imit/base</b> >25 <b>imit/base</b> >4 >20 >30	17 0 57 <1 768 1106 905 1099 3250 current 4 5 10 current 0.2 5.7 16.6	9 0 57 <1 775 1113 904 1175 2983 history1 4 6 14 6 14 0.3 8.0 19.5	17 0 56 <1 662 1039 868 1051 2688 history2 5 3 8 8 history2 0.2 6.5 17.9
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 1270 2060 2060 225 20 225 20 220 20 20 20 20 20 20 20 20 20 20 20	17 0 57 <1 768 1106 905 1099 3250 current 4 5 10 current 0.2 5.7 16.6	9 0 57 <1 775 1113 904 1175 2983 history1 4 6 14 6 14 0.3 8.0 19.5 history1	17 0 56 <1 662 1039 868 1051 2688 history2 5 3 8 history2 0.2 6.5 17.9 history2



# **OIL ANALYSIS REPORT**





	VISUAL		method	limit/base	current	history1	
	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		method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445	15.4	12.5	12.3	12.3
	GRAPHS Ferrous Alloys						
L L	80		$\langle \mathbf{n} \rangle$				
bpm	Jan 16/23/23 Feb19/23 Feb19/23	Mar10/23	Api5/23 Api24/23 May31/23	Aug16/23			
mqq	80 40 20 0 1 1 1 1 1 1 1 1 1 1 1 1 1		Apr5/23 Apr24/23 May31/23	Aug16/23			
udd 2 2 1 udd 1	80 60 40 20 0 CZC 6523 CZ 6523 CZ 6523 0 CZ 6523 CZ 6523	5	A M	/			
udd 2 2 1	80 60 10 10 10 10 10 10 10 10 10 1	Mari0/23	Apt5/23 Apt24/23 May31/23 May31/23	/			
udd 2 2 1 udd 1	80 60 40 20 0 CZC 6523 CZ 6523 CZ 6523 0 CZ 6523 CZ 6523	Mari0/23	A M	/	Base Numbe	r	

0.0

Dec29/22

Feb 9/23 Feb23/23

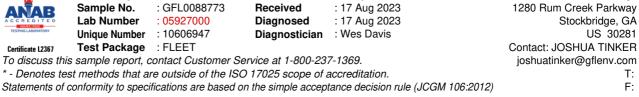
Jan 16/23

Number ( 4 (

Base

Aug16/23 -





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

Apr5/23

Apr24/23 May31/23

16 cSt (100°C)

12

Laboratory

Dec29/22 Jan 16/23 Feb9/23

-eb23/23 Mar10/23 Mar30/23

Submitted By: JOSHUA TINKER

Apr5/23

GFL Environmental - 010 - Stockbridge

Apr24/23 May31/23

Mar10/23 Mar30/23

US 30281

Aug16/23

T:

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