

## **OIL ANALYSIS REPORT**

#### Sample Rating Trend





### Component

#### **Diesel Engine** Fluid

PETRO CANADA DURON SHP 15W40 (--- LTR)

### DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor.

#### Wear

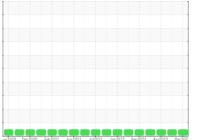
All component wear rates are normal.

#### 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.



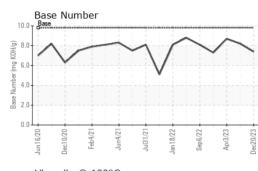


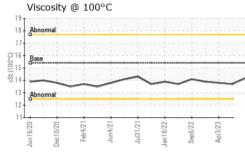
#### un2020 Dec2020 Feb2021 Jun2021 Ju2021 Jap2022 Sep2022 Apr2023 Dec202

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2		
Sample Number		Client Info		GFL0098258	GFL0061466	GFL0061494		
Sample Date		Client Info		20 Dec 2023	17 May 2023	03 Apr 2023		
Machine Age	hrs	Client Info		13754	13058	13058		
Oil Age	hrs	Client Info		13754	13058	13058		
Oil Changed		Client Info		N/A	N/A	N/A		
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 METALS method limit/base current history1 history2								
Iron	ppm	ASTM D5185m	>110	37	2	4		
Chromium	ppm	ASTM D5185m	>4	2	0	<1		
Nickel	ppm	ASTM D5185m	>2	0	0	<1		
Titanium	ppm	ASTM D5185m		<1	0	0		
Silver	ppm	ASTM D5185m	>2	<1	0	0		
Aluminum	ppm	ASTM D5185m	>25	2	<1	0		
Lead	ppm	ASTM D5185m	>45	7	0	<1		
Copper	ppm	ASTM D5185m	>85	2	0	<1		
Tin	ppm	ASTM D5185m	>4	0	0	0		
Vanadium	ppm	ASTM D5185m		0	0	0		
Cadmium	ppm	ASTM D5185m		0	0	0		
ADDITIVES		method	limit/base	current	history1	history2		
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 0	current 11	history1 6	history2 25		
	ppm ppm		0					
Boron		ASTM D5185m	0	11	6	25		
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	11 <1	6 0	25 0		
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	11 <1 66	6 0 58	25 0 58		
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	11 <1 66 <1	6 0 58 <1	25 0 58 <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	11 <1 66 <1 985	6 0 58 <1 857	25 0 58 <1 781		
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	11 <1 66 <1 985 1187	6 0 58 <1 857 1044	25 0 58 <1 781 1091		
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	11 <1 66 <1 985 1187 1174	6 0 58 <1 857 1044 928	25 0 58 <1 781 1091 948		
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	11 <1 66 <1 985 1187 1174 1365	6 0 58 <1 857 1044 928 1158	25 0 58 <1 781 1091 948 1120		
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	11 <1 66 <1 985 1187 1174 1365 3044	6 0 58 <1 857 1044 928 1158 2899	25 0 58 <1 781 1091 948 1120 2785		
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	11 <1 66 <1 985 1187 1174 1365 3044 current	6 0 58 <1 857 1044 928 1158 2899 history1	25 0 58 <1 781 1091 948 1120 2785 history2		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b>	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	11 <1 66 <1 985 1187 1174 1365 3044 current 6	6 0 58 <1 857 1044 928 1158 2899 history1 3	25 0 58 <1 781 1091 948 1120 2785 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 ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>limit/base</b> >30	11 <1 66 <1 985 1187 1174 1365 3044 current 6 5	6 0 58 <1 857 1044 928 1158 2899 history1 3 2	25 0 58 <1 781 1091 948 1120 2785 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 0 1010 1070 1150 1270 2060 <b>limit/base</b> >30	11 <1 66 <1 985 1187 1174 1365 3044 current 6 5 3	6 0 58 <1 857 1044 928 1158 2899 history1 3 2 0	25 0 58 <1 781 1091 948 1120 2785 history2 5 3 2		
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 ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>Imit/base</b> >30 >20	11 <1 66 <1 985 1187 1174 1365 3044 <b>current</b> 6 5 3 3	6 0 58 <1 857 1044 928 1158 2899 history1 3 2 0 0	25 0 58 <1 781 1091 948 1120 2785 <b>history2</b> 5 3 2 <b>history2</b>		
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 ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >30 limit/base >20	11 <1 66 <1 985 1187 1174 1365 3044 <i>current</i> 6 5 3 <i>current</i> 2.1	6 0 58 <1 857 1044 928 1158 2899 history1 3 2 0 history1 0.2	25 0 58 <1 781 1091 948 1120 2785 history2 5 3 2 5 3 2 history2 0.1		
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	11 <1 66 <1 985 1187 1174 1365 3044 <i>current</i> 6 5 3 <i>current</i> 2.1 10.3	6 0 58 <1 857 1044 928 1158 2899 history1 3 2 0 history1 0.2 7.8	25 0 58 <1 781 1091 948 1120 2785 history2 5 3 2 5 3 2 2 history2 0.1 6.4		
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 >20 <b>Imit/base</b> >3 >20	11 <1 66 <1 985 1187 1174 1365 3044 <i>current</i> 6 5 3 <i>current</i> 2.1 10.3 24.1	6 0 58 <1 857 1044 928 1158 2899 history1 3 2 0 history1 0.2 7.8 20.1	25 0 58 <1 781 1091 948 1120 2785 <b>history2</b> 5 3 2 <b>history2</b> 0.1 6.4 18.3		
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 ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 <b>imit/base</b> >30 >20 <b>imit/base</b> >3 >20 >30	11 <1 66 <1 985 1187 1174 1365 3044 <i>current</i> 6 5 3 <i>current</i> 2.1 10.3 24.1 <i>current</i>	6 0 58 <1 857 1044 928 1158 2899 history1 3 2 0 history1 0.2 7.8 20.1 history1	25 0 58 <1 781 1091 948 1120 2785 history2 5 3 2 bistory2 0.1 6.4 18.3 history2		

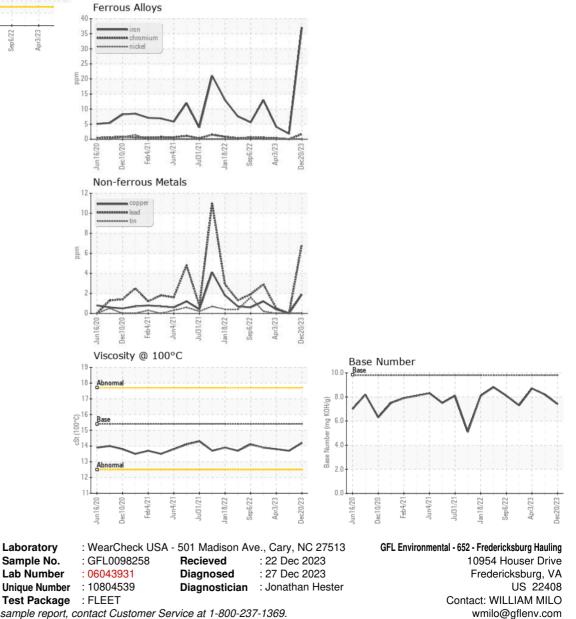


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VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*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	14.2	13.7	13.8
GRAPHS						





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)

Certificate L2367

Submitted By: TECHNICIAN ACCOUNT

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