

## **OIL ANALYSIS REPORT**

Sample Rating Trend





Machine Id Component

Fluid

**Diesel Engine** PETRO CANADA DURON SHP 15W40 (--- QTS)

### 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 INFOR	MATION	method	limit/base	current	history1	history2			
Sample Number		Client Info		GFL0097654	GFL0087315	GFL0072897			
Sample Date		Client Info		01 Nov 2023	25 Sep 2023	21 Apr 2023			
Machine Age	hrs	Client Info		11123	10851	10032			
Oil Age	hrs	Client Info		500	819	170			
Oil Changed		Client Info		Changed	Changed	Changed			
Sample Status				NORMAL	NORMAL	NORMAL			
CONTAMINAT		method	limit/base	current	history1	history2			
Fuel			>3.0	<1.0	<1.0	<1.0			
	•		>3.0			<1.0 NEG			
Glycol		WC Method		NEG	NEG				
WEAR METAL	S	method	limit/base	current	history1	history2			
Iron	ppm	ASTM D5185m	>120	3	7	12			
Chromium	ppm	ASTM D5185m	>20	0	0	<1			
Nickel	ppm	ASTM D5185m	>5	0	0	0			
Titanium	ppm	ASTM D5185m	>2	0	0	0			
Silver	ppm	ASTM D5185m	>2	0	0	0			
Aluminum	ppm	ASTM D5185m	>20	<1	4	<1			
Lead	ppm	ASTM D5185m	>40	0	0	0			
Copper	ppm	ASTM D5185m	>330	<1	<1	<1			
Tin	ppm	ASTM D5185m	>15	0	0	0			
Vanadium	ppm	ASTM D5185m		<1	0	0			
Cadmium	ppm	ASTM D5185m		0	0	0			
ADDITIVES		method	limit/base	ourropt	biotonut	history2			
NDDHIVE0		methou				ristory2			
Boron	ppm	ASTM D5185m	0	<1	1	3			
	ppm ppm								
Boron		ASTM D5185m	0	<1	1	3			
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	<1 0	1 0	3 0			
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	<1 0 61	1 0 60	3 0 61			
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	<1 0 61 <1	1 0 60 0	3 0 61 <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	<1 0 61 <1 1002	1 0 60 0 976	3 0 61 <1 947			
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	<1 0 61 <1 1002 1160	1 0 60 0 976 1082	3 0 61 <1 947 1121			
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	<1 0 61 <1 1002 1160 1065	1 0 60 0 976 1082 1002	3 0 61 <1 947 1121 915			
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	<1 0 61 <1 1002 1160 1065 1301	1 0 60 0 976 1082 1002 1249	3 0 61 <1 947 1121 915 1246			
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	<1 0 61 <1 1002 1160 1065 1301 3172	1 0 60 976 1082 1002 1249 3106	3 0 61 <1 947 1121 915 1246 2978			
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	0 0 60 1010 1070 1150 1270 2060	<1 0 61 <1 1002 1160 1065 1301 3172 current	1 0 60 0 976 1082 1002 1249 3106 history1 <1	3 0 61 <1 947 1121 915 1246 2978 history2			
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	0 0 60 1010 1070 1150 1270 2060	<1 0 61 <1 1002 1160 1065 1301 3172 current 3	1 0 60 976 1082 1002 1249 3106 history1	3 0 61 <1 947 1121 915 1246 2978 history2 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 >20	<1 0 61 <1 1002 1160 1065 1301 3172 current 3 4 0	1 0 60 0 976 1082 1002 1249 3106 history1 <1 2 0	3 0 61 <1 947 1121 915 1246 2978 history2 3 2 0			
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	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	<1 0 61 <1 1002 1160 1065 1301 3172 current 3 4 0 current	1 0 60 976 1082 1002 1249 3106 history1 <1 2 0 0	3 0 61 <1 947 1121 915 1246 2978 history2 3 2 0 0 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 TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 <u>limit/base</u> >20	<1 0 61 <1 1002 1160 1065 1301 3172 <u>current</u> 3 4 0 <u>current</u>	1 0 60 976 1082 1002 1249 3106 history1 <1 2 0 history1 0.3	3 0 61 <1 947 1121 915 1246 2978 history2 3 2 0 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 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	<1 0 61 <1 1002 1160 1065 1301 3172 <i>current</i> 3 4 0 <i>current</i> 0.3 6.3	1 0 60 0 976 1082 1002 1249 3106 history1 <1 2 0 history1 0.3 5.7	3 0 61 <1 947 1121 915 1246 2978 history2 3 2 2 0 history2 0.5 7.2			
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 2060 225 20 225 20 <b>imit/base</b> >4 20 20	<1 0 61 <1 1002 1160 1065 1301 3172 current 3 4 0 current 0.3 6.3 18.2	1 0 60 976 1082 1002 1249 3106 history1 <1 2 0 history1 0.3 5.7 17.9	3 0 61 <1 947 1121 915 1246 2978 history2 3 2 2 0 history2 0.5 7.2 18.0			
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 D7844 *ASTM D7624	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i> >4 >20	<1 0 61 <1 1002 1160 1065 1301 3172 <i>current</i> 3 4 0 <i>current</i> 0.3 6.3	1 0 60 976 1082 1002 1249 3106 history1 <1 2 0 history1 0.3 5.7	3 0 61 <1 947 1121 915 1246 2978 history2 3 2 0 history2 0.5 7.2 18.0 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 D7844 *ASTM D7624 *ASTM D7414	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 <b>imit/base</b> >4 20 20	<1 0 61 <1 1002 1160 1065 1301 3172 current 3 4 0 current 0.3 6.3 18.2 current 14.1	1 0 60 0 976 1082 1002 1249 3106 history1 <1 2 0 0 history1 0.3 5.7 17.9 history1 13.6	3 0 61 <1 947 1121 915 1246 2978 history2 3 2 0 0 history2 0.5 7.2 18.0 history2 14.6			
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	<1 0 61 <1 1002 1160 1065 1301 3172 <i>current</i> 3 4 0 <i>current</i> 0.3 6.3 18.2 <i>current</i>	1 0 60 0 976 1082 1002 1249 3106 history1 <1 2 0 history1 0.3 5.7 17.9 history1	3 0 61 <1 947 1121 915 1246 2978 history2 3 2 0 history2 0.5 7.2 18.0 history2			



# **OIL ANALYSIS REPORT**

\*Visual

scalar

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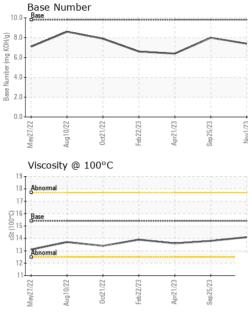
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