

## **OIL ANALYSIS REPORT**

Sample Rating Trend



#### Machine Id

**BLUE BIRD 111** 

### Diesel Engine

Fluid PETRO CANADA DURON HP 15W40 (--- 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 INFORM	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0905904	WC0792705	
Sample Date		Client Info		15 Jul 2024	26 Jul 2023	
Machine Age	mls	Client Info		109105	98823	
Oil Age	mls	Client Info		0	0	
Oil Changed		Client Info		Not Changd	Not Changd	
Sample Status				NORMAL	NORMAL	
CONTAMINATION	٧	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	
Water		WC Method	>0.2	NEG	NEG	
Glycol		WC Method		NEG	NEG	
WEAR METALS		method	limit/base	current	history1	history2
Iron	nom	ASTM D5185m	>100	12	22	
Chromium	ppm	ASTM D5185m		<1	<1	
Nickel	ppm ppm	ASTM D5185m	>20	0	0	
Titanium	ppm	ASTM D5185m	~7	0	0	
Silver	ppm	ASTM D5185m	>3	0	0	
Aluminum	ppm		>20	3	4	
Lead	ppm	ASTM D5185m	>40	0	4 0	
Copper	ppm	ASTM D5185m		<1	<1	
Tin	ppm		>15	0	<1	
Vanadium	ppm	ASTM D5185m	210	0	0	
Cadmium	ppm	ASTM D5185m		0	0	
Cadiman	ppin			Ū	0	
		mathad	limit/bass	ourropt	bistorut	biotom/0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	limit/base	4	13	
Boron Barium	ppm	ASTM D5185m ASTM D5185m	limit/base	4 0	13 0	
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	4 0 45	13 0 69	
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	4 0 45 0	13 0 69 <1	
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	4 0 45 0 751	13 0 69 <1 982	
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	4 0 45 0 751 1247	13 0 69 <1 982 1208	  
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	limit/base	4 0 45 0 751 1247 988	13 0 69 <1 982 1208 1084	   
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	4 0 45 0 751 1247 988 1174	13 0 69 <1 982 1208 1084 1335	
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		4 0 45 0 751 1247 988 1174 3582	13 0 69 <1 982 1208 1084 1335 3799	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	4 0 45 0 751 1247 988 1174	13 0 69 <1 982 1208 1084 1335 3799 history1	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	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		4 0 45 0 751 1247 988 1174 3582	13 0 69 <1 982 1208 1084 1335 3799 history1 5	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	4 0 45 0 751 1247 988 1174 3582 current 4 1	13 0 69 <1 982 1208 1084 1335 3799 history1 5 <	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	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	limit/base	4 0 45 0 751 1247 988 1174 3582 current 4	13 0 69 <1 982 1208 1084 1335 3799 history1 5	     history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	4 0 45 0 751 1247 988 1174 3582 current 4 1	13 0 69 <1 982 1208 1084 1335 3799 history1 5 <	       history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20	4 0 45 0 751 1247 988 1174 3582 current 4 1 2	13 0 69 <1 982 1208 1084 1335 3799 history1 5 < <1 4	      history2  
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 limit/base	4 0 45 0 751 1247 988 1174 3582 current 4 1 2 2 current	13 0 69 <1 982 1208 1084 1335 3799 history1 5 <1 4 history1	     history2   history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 limit/base >3	4 0 45 0 751 1247 988 1174 3582 <u>current</u> 4 1 2 <u>current</u> 0.4	13 0 69 <1 982 1208 1084 1335 3799 history1 5 <1 4 history1 0.8	    history2  history2  history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 limit/base >3 >20	4 0 45 0 751 1247 988 1174 3582 current 4 1 2 current 0.4 6.8	13 0 69 <1 982 1208 1084 1335 3799 history1 5 <1 4 history1 0.8 9.2	     history2   history2  history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 limit/base >3 >20 >30	4 0 45 0 751 1247 988 1174 3582 <u>current</u> 4 1 2 <u>current</u> 0.4 6.8 18.3	13 0 69 <1 982 1208 1084 1335 3799 history1 5 <1 4 <b>history1</b> 0.8 9.2 20.1	      history2  history2  history2 
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624	limit/base >25 >20 limit/base >3 >20 >30 limit/base	4 0 45 0 751 1247 988 1174 3582 current 4 1 2 current 0.4 6.8 18.3 current	13 0 69 <1 982 1208 1084 1335 3799 history1 5 <1 4 history1 0.8 9.2 20.1 history1	      history2  history2  history2  history2



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2!

/ps/cu

10

10.0

(mg KOH/g)

mbe 4.

Base 2 (

> > 13 Abnormal

12

Jul26/23

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# **OIL ANALYSIS REPORT**



Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Contact/Location: BRANDON BRIGGS - WAYGOL