

# **OIL ANALYSIS REPORT**



### Machine Id **144** Component **Diesel Engine** Fluid **PETRO CANADA DURON HP 15W40 (--- GAL)**

#### DIAGNOSIS

### Recommendation

Resample at the next service interval to monitor. Please specify the component make and model with your next sample.

## Wear

All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil.

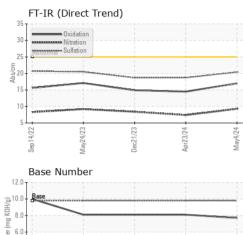
#### Fluid Condition

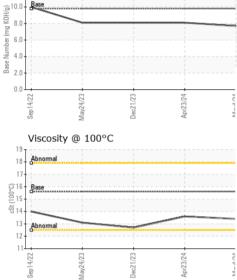
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0905873	WC0905878	WC0878883
Sample Date		Client Info		04 May 2024	23 Apr 2024	21 Dec 2023
Machine Age	mls	Client Info		114795	112481	100089
Oil Age	mls	Client Info		5000	5000	5000
Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATION	٧	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	>100	21	18	24
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	0	0	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	5	5	5
Lead	ppm	ASTM D5185m	>40	0	0	0
Copper	ppm	ASTM D5185m	>330	2	<1	<1
Tin	ppm	ASTM D5185m	>15	<1	<1	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	current 2	history1 7	history2 6
	ppm ppm		limit/base		· · · · ·	
Boron		ASTM D5185m	limit/base	2	7	6
Boron Barium	ppm	ASTM D5185m ASTM D5185m	limit/base	2 0	7 0	6 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	2 0 60	7 0 63	6 0 72
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	2 0 60 <1	7 0 63 <1	6 0 72 0
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	2 0 60 <1 897	7 0 63 <1 1000	6 0 72 0 1090
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	2 0 60 <1 897 1031	7 0 63 <1 1000 1173	6 0 72 0 1090 1224
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	2 0 60 <1 897 1031 1026	7 0 63 <1 1000 1173 1052	6 0 72 0 1090 1224 1116
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	limit/base	2 0 60 <1 897 1031 1026 1220	7 0 63 <1 1000 1173 1052 1355	6 0 72 0 1090 1224 1116 1393
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		2 0 60 <1 897 1031 1026 1220 3178	7 0 63 <1 1000 1173 1052 1355 3708	6 0 72 0 1090 1224 1116 1393 3648
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 ASTM D5185m	limit/base	2 0 60 <1 897 1031 1026 1220 3178 current	7 0 63 <1 1000 1173 1052 1355 3708 history1	6 0 72 0 1090 1224 1116 1393 3648 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b>	limit/base >25	2 0 60 <1 897 1031 1026 1220 3178 current 4	7 0 63 <1 1000 1173 1052 1355 3708 history1 4	6 0 72 0 1090 1224 1116 1393 3648 history2 5
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m	limit/base >25	2 0 60 <1 897 1031 1026 1220 3178 current 4 2	7 0 63 <1 1000 1173 1052 1355 3708 history1 4 <1	6 0 72 0 1090 1224 1116 1393 3648 history2 5 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20	2 0 60 <1 897 1031 1026 1220 3178 current 4 2 4	7 0 63 <1 1000 1173 1052 1355 3708 history1 4 < 3	6 0 72 0 1090 1224 1116 1393 3648 history2 5 2 6
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 >3	2 0 60 <1 897 1031 1026 1220 3178 current 4 2 4 2 4	7 0 63 <1 1000 1173 1052 1355 3708 history1 4 <1 3 history1	6 0 72 0 1090 1224 1116 1393 3648 history2 5 2 6 6 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	2 0 60 <1 897 1031 1026 1220 3178 current 4 2 4 2 4 current 0.7	7 0 63 <1 1000 1173 1052 1355 3708 history1 4 <1 3 history1 0.5	6 0 72 0 1090 1224 1116 1393 3648 history2 5 2 5 2 6 history2 0.5
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	2 0 60 <1 897 1031 1026 1220 3178 <i>current</i> 4 2 4 <i>current</i> 0.7 9.3	7 0 63 <1 1000 1173 1052 1355 3708 history1 4 <1 3 history1 0.5 7.4	6 0 72 0 1090 1224 1116 1393 3648 history2 5 2 6 6 history2 0.5 8.4
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	Iimit/base >25 >20 Iimit/base >3 >20 >30	2 0 60 <1 897 1031 1026 1220 3178 <u>current</u> 4 2 4 2 4 <u>current</u> 0.7 9.3 20.4	7 0 63 <1 1000 1173 1052 1355 3708 history1 4 <1 3 history1 0.5 7.4 18.7	6 0 72 0 1090 1224 1116 1393 3648 history2 5 2 6 6 history2 0.5 8.4 18.7



# **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			
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG			
Free Water	scalar	*Visual		NEG	NEG	NEG			
FLUID PROPER		method	limit/base	current	history1	history2			
Visc @ 100°C	cSt	ASTM D445	15.6	13.4	13.6	12.7			
GRAPHS									
Iron (ppm)			100	Lead (ppm)					
200 - Severe			80	Severe					
			0.0						
a 100 - Abnormal			E 40	Abnormal					
50-			20	-					
		+			c.				
Sep 14/22 May24/23	Jec21/23	Apr23/24	May4/24	Sep 14/22 May24/23	Jec21/23	Apr23/24 May4/24			
	De	Ap	Z	_		Ap			
Aluminum (ppm)			50	Chromium (p	pm)				
40 - Severe			40	Severe					
_ 30-			30						
20 - Abnormal		·	<sup>30</sup> 20	Abnormal					
10			10						
		+	0						
Sep 14/22 May24/23	Dec21/23	Apr23/24 -	May4/24	Sep14/22 May24/23	Jec21/23	Apr23/24 - May4/24 -			
∞ ≊ Copper (ppm)	Dé	A	2	∞ ≊ Silicon (ppm)	Dě	A A			
400 T Severe	·		80			******			
300 -			60						
툴 200 -			튭.40						
100			20	Abnormal					
33 33	/23 -	/24 .	74		/23 +	/24			
Sep 14/22 May24/23	Dec21/23	Apr23/24	May4/24	Sep 1 4/22 May2 4/23	Dec21/23	Apr23/24 May4/24			
Viscosity @ 100°C	2			Base Number					
Abnormal	1	I I	12.0 E 10.0	Pass					
T I			(b)H0.0 H0 X William 8.0 Jack Konten Base 8.0 Jack Konten Base 2.0						
			ia 6.0						
Abnormal				1					
10			0.0	L					
Sep 14/22 May24/23	Dec21/23	Apr23/24	May4/24	Sep 14/22 May24/23	Dec21/23	Apr23/24 May4/24			
Sep May	Dec	Ap	M	Ser	Dec	Api			
· WoorChock USA 50	1 Madica		NC 07510			BUS GARAGE			
: WearCheck USA - 50 : WC0905873	Rece		6 May 2024	WAYN		M CHURCH RD			
: 06182216	Teste		3 May 2024			LDSBORO, NC			
: 11033542 Diagnosed : 18 May 2024 - Wes Davis US 27530									
: MOB 1 (Additional Tests: TBN) Contact: BRANDON BRIGGS									

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)

Report Id: WAYGOL [WUSCAR] 06182216 (Generated: 05/18/2024 00:53:14) Rev: 1

Certificate L2367

Laboratory Sample No. Lab Number Unique Number Test Package

Contact/Location: BRANDON BRIGGS - WAYGOL

Т:

F:

brandonbriggs@wcps.org