

## **OIL ANALYSIS REPORT**

Sample Rating Trend



Machine Id **4617M** Component **Diesel Engine** Fluid

## PETRO CANADA DURON SHP 15W40 (--- GAL)

SAMPLE INFORMATION method

### 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.

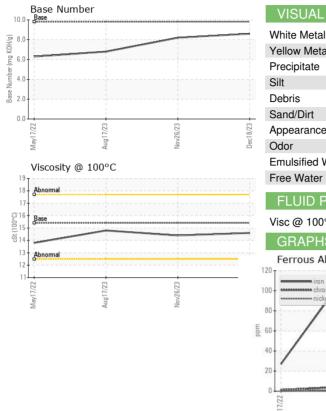
### Fluid Condition

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		method	iimi/base	current	nistory i	nistoryz
Sample Number		Client Info		GFL0097687	GFL0097727	GFL0085059
Sample Date		Client Info		18 Dec 2023	26 Nov 2023	17 Aug 2023
Machine Age	hrs	Client Info		20852	20668	20169
Oil Age	hrs	Client Info		184	499	20169
Oil Changed		Client Info		Changed	Changed	N/A
Sample Status				NORMAL	NORMAL	ABNORMAL
			11 11 11			
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>90	10	58	<b>▲</b> 120
Chromium	ppm		>20	<1	2	5
Nickel	ppm	ASTM D5185m	>2	0	0	2
Titanium	ppm	ASTM D5185m		0	0	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m		<1	3	7
Lead	ppm	ASTM D5185m	>40	0	<1	1
Copper	ppm	ASTM D5185m		0	<1	3
Tin	ppm		>15	0	0	<1
Vanadium	ppm	ASTM D5185m		0	0	<1
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
	ppm					
Boron	ppm ppm	ASTM D5185m	0	4	3	2
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	4 0	3 0	2
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	4 0 48	3	2
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	4 0 48 0	3 0 64 0	2 0 63
Boron Barium Molybdenum	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	4 0 48	3 0 64	2 0 63 1
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	4 0 48 0 758	3 0 64 0 1101	2 0 63 1 995
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	4 0 48 0 758 1178	3 0 64 0 1101 1291	2 0 63 1 995 1149
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	4 0 48 0 758 1178 880	3 0 64 0 1101 1291 1262	2 0 63 1 995 1149 1059
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	4 0 48 0 758 1178 880 1154	3 0 64 0 1101 1291 1262 1582	2 0 63 1 995 1149 1059 1300
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	4 0 48 0 758 1178 880 1154 2890 current	3 0 64 0 1101 1291 1262 1582 3671 history1	2 0 63 1 995 1149 1059 1300 3243 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	0 0 60 1010 1070 1150 1270 2060	4 0 48 0 758 1178 880 1154 2890 current 3	3 0 64 0 1101 1291 1262 1582 3671	2 0 63 1 995 1149 1059 1300 3243
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	4 0 48 0 758 1178 880 1154 2890 current	3 0 64 0 1101 1291 1262 1582 3671 history1 7	2 0 63 1 995 1149 1059 1300 3243 history2 13
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 60 1010 1070 1150 1270 2060 imit/base	4 0 48 0 758 1178 880 1154 2890 current 3 3 3	3 0 64 0 1101 1291 1262 1582 3671 <b>history1</b> 7 4	2 0 63 1 995 1149 1059 1300 3243 history2 13 9
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	4 0 48 0 758 1178 880 1154 2890 current 3 3 0 current	3 0 64 0 1101 1291 1262 1582 3671 history1 7 4 <1 7	2 0 63 1 995 1149 1059 1300 3243 <b>history2</b> 13 9 <1 <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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 1imit/base >20	4 0 48 0 758 1178 880 1154 2890 current 3 3 0 current 0.3	3 0 64 0 1101 1291 1262 1582 3671 history1 7 4 <1 -1 history1 0.5	2 0 63 1 995 1149 1059 1300 3243 <b>history2</b> 13 9 <1 <b>history2</b> 1.5
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>Imit/base</b> >25 >20	4 0 48 0 758 1178 880 1154 2890 current 3 3 0 current	3 0 64 0 1101 1291 1262 1582 3671 history1 7 4 <1 7	2 0 63 1 995 1149 1059 1300 3243 <b>history2</b> 13 9 <1 <b>history2</b>
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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>imit/base</b> >25 >20 <b>imit/base</b> >6 >20	4 0 48 0 758 1178 880 1154 2890 current 3 3 0 current 0.3 7.0	3 0 64 0 1101 1291 1262 1582 3671 history1 7 4 <1 7 4 <1 0.5 8.8 20.1	2 0 63 1 995 1149 1059 1300 3243 <b>history2</b> 13 9 <1 <b>history2</b> 1.5 1.5 12.8 25.0
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 D7844 *ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 2260 225 220 220 imit/base >20 20 30 20 30 20 30	4 0 48 0 758 1178 880 1154 2890 current 3 3 3 0 current 0.3 7.0 18.8 current	3 0 64 0 1101 1291 1262 1582 3671 history1 7 4 <1 0.5 8.8 20.1 history1	2 0 63 1 995 1149 1059 1300 3243 history2 13 9 <1 history2 1.5 1.5 12.8 25.0 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 TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>imit/base</b> >25 <b>imit/base</b> >20 <b>imit/base</b> >20	4 0 48 0 758 1178 880 1154 2890 current 3 3 0 current 0.3 7.0 18.8	3 0 64 0 1101 1291 1262 1582 3671 history1 7 4 <1 7 4 <1 0.5 8.8 20.1	2 0 63 1 995 1149 1059 1300 3243 <b>history2</b> 13 9 <1 <b>history2</b> 1.5 1.5 12.8 25.0



# **OIL ANALYSIS REPORT**



4	Laboratory Sample No. Lab Number	: WearCheck USA - : GFL0097687 : 06044586	501 Madison Ave., Cary, NC 27513   Recieved : 26 Dec 2023   Diagnosed : 27 Dec 2023   Diagnostician : Wes Davis   vice at 1-800-237-1369.			GFL Environmental - 405 - Arbor Hills 7400 Napier Rd NORTHVILLE, MI US 48168 Contact: Anthony Hopkins ahopkins@gflenv.com		
		13 Abnormal 12 11 11 12 11 12 11 12 11 12 11 12 12	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	nuvco/co/co	0.0	Aug17/23 -	Nov26/23	
		17- 16- Base 015- 15- 14- 14- 17- 17- 15- 14- 15- 14- 15- 14- 15- 14- 15- 14- 14- 15- 14- 14- 15- 14- 15- 15- 15- 15- 15- 15- 15- 15			(B.0 D)HOX B 6.0 aquuny 4.0 eeg 2.0			
		EZ/L1 <sup>lbn</sup> W Viscosity @ 100°	C	Dec18/23		Number		
		2 0			-			
		8 - copper lead						
		Non-ferrous Meta		0ec1823	-			
		長 60 40 20						
	Nov26/23 +	Ferrous Alloys						
		Visc @ 100°C GRAPHS	cSt A	ASTM D445 15.4	4 14.6	14.4	14.8	
		FLUID PROPI				rrent history <sup>-</sup>		
С		Emulsified Water Free Water		Visual >0. Visual	2 NEG NEG		NEG NEG	
	Nov26/23 Dec18/23			Visual NO	RML NOF	ML NORML	NORML NORML	
	23	Sand/Dirt	scalar *	Visual NO	NE NON	IE NONE	NONE	
		Silt Debris		Visual NO Visual NO			NONE	
		Precipitate	scalar *	Visual NO			NONE	
		Yellow Metal		Visual NO			NONE	

Ĕ