

## **OIL ANALYSIS REPORT**

Sample Rating Trend





Machine Id **711045** Component **Diesel Engine** Fluid

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

## 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

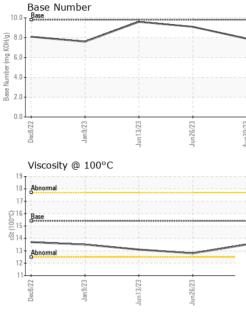
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORM	MATION	method	limit/base	current	history1	history2	
Sample Number		Client Info		GFL0072535	GFL0072564	GFL0072517	
Sample Date		Client Info		30 Aug 2023	26 Jun 2023	13 Jun 2023	
Machine Age	hrs	Client Info	4743		4372	3280	
Oil Age	hrs	Client Info		4743	600	3280	
Oil Changed		Client Info		Not Changd	Changed	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	
Glycol		WC Method		NEG	NEG	NEG	
WEAR METAL	S	method	limit/base	current	history1	history2	
Iron	ppm	ASTM D5185m	>80	23	4	7	
Chromium	ppm	ASTM D5185m		1	<1	<1	
Nickel	ppm	ASTM D5185m	>2	0	<1	0	
Titanium	ppm	ASTM D5185m	~-	۰ <1	0	0	
Silver	ppm	ASTM D5185m	>3	0	0	0	
Aluminum	ppm	ASTM D5185m		3	2	<1	
Lead		ASTM D5185m	>30	0	0	0	
	ppm	ASTM D5185m		2	4	<1	
Copper Tin	ppm	ASTM D5185m		0	4 <1	< 1	
Vanadium	ppm	ASTM D5185m ASTM D5185m	>5	0 <1	<1	0	
	ppm						
Cadmium	ppm	ASTM D5185m		0	0	0	
ADDITIVES		method	limit/base	current	history1	history2	
Boron	ppm	ASTM D5185m	0	current 1	7	18	
	ppm ppm						
Boron		ASTM D5185m	0	1	7	18	
Boron Barium	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0	1 0	7 0	18 0	
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	1 0 60	7 0 58	18 0 52	
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	1 0 60 <1	7 0 58 <1	18 0 52 <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 60 <1 964	7 0 58 <1 946	18 0 52 <1 844	
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 60 <1 964 1141	7 0 58 <1 946 1067	18 0 52 <1 844 1264	
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 60 <1 964 1141 988	7 0 58 <1 946 1067 1042	18 0 52 <1 844 1264 949	
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 60 <1 964 1141 988 1263	7 0 58 <1 946 1067 1042 1275	18 0 52 <1 844 1264 949 1171	
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 1010 1070 1150 1270 2060	1 0 60 <1 964 1141 988 1263 3375	7 0 58 <1 946 1067 1042 1275 3895	18 0 52 <1 844 1264 949 1171 3508	
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 60 <1 964 1141 988 1263 3375 current	7 0 58 <1 946 1067 1042 1275 3895 history1	18 0 52 <1 844 1264 949 1171 3508 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	1 0 60 <1 964 1141 988 1263 3375 current 5	7 0 58 <1 946 1067 1042 1275 3895 history1 3	18 0 52 <1 844 1264 949 1171 3508 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 60 1010 1070 1150 1270 2060 kimit/base >20	1 0 60 <1 964 1141 988 1263 3375 current 5 6	7 0 58 <1 946 1067 1042 1275 3895 history1 3 2	18 0 52 <1 844 1264 949 1171 3508 history2 5 2	
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> >20	1 0 60 <1 964 1141 988 1263 3375 current 5 6 3	7 0 58 <1 946 1067 1042 1275 3895 history1 3 2 1	18 0 52 <1 844 1264 949 1171 3508 history2 5 2 2 <1	
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 2060 2060 200 200 200 200 200 200	1 0 60 <1 964 1141 988 1263 3375 <u>current</u> 5 6 3 3 <u>current</u> 0.6	7 0 58 <1 946 1067 1042 1275 3895 history1 3 2 1 1 history1 0.2	18 0 52 <1 844 1264 949 1171 3508 history2 5 2 <1 5 2 <1 history2 0.2	
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 2060 200 200 200 200 200 200	1 0 60 <1 964 1141 988 1263 3375 current 5 6 3 3 current	7 0 58 <1 946 1067 1042 1275 3895 history1 3 2 1 1 history1	18 0 52 <1 844 1264 949 1171 3508 history2 5 2 <1 *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 <i>limit/base</i> >20 <i>limit/base</i> >3 >20	1 0 60 <1 964 1141 988 1263 3375 <i>current</i> 5 6 3 <i>current</i> 0.6 9.4	7 0 58 <1 946 1067 1042 1275 3895 history1 3 2 1 1 history1 0.2 6.7	18 0 52 <1 844 1264 949 1171 3508 history2 5 2 2 <1 2 <1 history2 0.2 5.5	
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 22060 2060 2060 200 200 200 200 200 20	1 0 60 <1 964 1141 988 1263 3375 current 5 6 3 3 current 0.6 9.4 19.6 current	7 0 58 <1 946 1067 1042 1275 3895 history1 3 2 1 3 2 1 1 0.2 6.7 17.8 history1	18 0 52 <1 844 1264 949 1171 3508 history2 5 2 <1 5 2 <1 history2 0.2 5.5 19.3 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 D5185m	0 0 0 1010 1070 1150 1270 2060 <b>imit/base</b> >20 <b>imit/base</b> >3 >20 >30	1 0 60 <1 964 1141 988 1263 3375 <u>current</u> 5 6 3 3 <u>current</u> 0.6 9.4 19.6	7 0 58 <1 946 1067 1042 1275 3895 history1 3 2 1 1 history1 0.2 6.7 17.8	18 0 52 <1 844 1264 949 1171 3508 history2 5 2 <1 5 2 <1 history2 0.2 5.5 19.3	



# **OIL ANALYSIS REPORT**

VISUAL



Laboratory Sample No. Lab Number Unique Numi Certificate 12367 To discuss this sample report * - Denotes test methods the		: WearCheck USA - : GFL0072535 : 05943283 : 10633895 : FLEET	Received Diagnose	Diagnosed: 07 Sep 2023Diagnostician: Wes Davis			GFL Environmental - 419 - Metro Saginaw 6950 N Michigan Saginaw, MI US 48604 Contact: Jeremy Hines jhines@gflenv.com T: (800)684-1277			
		E26 gen Non-ferrous Met	Juniaza	Jun26/23	Aug30/23 Aug	Base Number	Junt 3/23	Jun26/23		
Jun13/23	Jun26/23 +	Visc @ 100°C GRAPHS Ferrous Alloys	cSt	ASTM D445	15.4	13.5	12.8	13.1		
-		Free Water FLUID PROP		*Visual method	limit/base	NEG current	NEG history1	NEG history2		
Jun13/23	Jun26/23 +	Sand/Dirt Appearance Odor Emulsified Water	scalar scalar	*Visual *Visual *Visual *Visual	NONE NORML >0.2	NONE NORML NORML NEG	NONE NORML NORML NEG	NONE NORML NORML NEG		
		Silt Debris	scalar	*Visual *Visual	NONE NONE	NONE NONE	NONE NONE	NONE NONE		
		White Metal Yellow Metal Precipitate	scalar	*Visual *Visual *Visual	NONE NONE	NONE NONE	NONE NONE	NONE NONE NONE		

Submitted By: Colton Kitts Page 2 of 2