

## **OIL ANALYSIS REPORT**

#### Sample Rating Trend



## Machine Id 920067

#### Component Diesel Engine

Fluid PETRO CANADA DURON SHP 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.

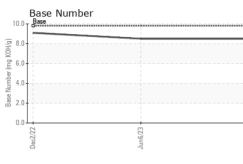
## Fluid Condition

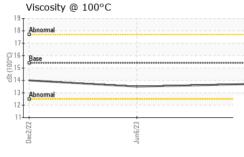
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0086740	GFL0071279	GFL0065041
Sample Date		Client Info		26 Oct 2023	06 Jun 2023	02 Dec 2022
Machine Age	hrs	Client Info		8144	7020	5767
Oil Age	hrs	Client Info		8144	7020	5767
Oil Changed		Client Info		Changed	Not Changd	Not Changd
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 METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>110	9	11	3
Chromium	ppm	ASTM D5185m	>4	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	0	0
Titanium	ppm	ASTM D5185m		<1	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>25	3	8	<1
Lead	ppm	ASTM D5185m	>45	0	0	0
Copper	ppm	ASTM D5185m	>85	<1	<1	<1
Tin	ppm	ASTM D5185m	>4	<1	0	0
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		and a first of			In the tax work	biotory 0
		method	limit/base	current	nistory i	TIISTOLAS
Boron	mqq	method ASTM D5185m	limit/base	current 0	history1 0	history2 94
	ppm mag	ASTM D5185m		0		
Boron Barium	ppm		0		0	94
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m	0	0 0	0	94 2
Boron Barium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	0 0 63	0 0 63	94 2 60
Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	0 0 63 <1	0 0 63 <1	94 2 60 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	0 0 63 <1 996	0 0 63 <1 1003	94 2 60 <1 917
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	0 0 63 <1 996 1114	0 0 63 <1 1003 1124	94 2 60 <1 917 1093
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	0 0 63 <1 996 1114 1110	0 0 63 <1 1003 1124 1062	94 2 60 <1 917 1093 1023
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	0 0 63 <1 996 1114 1110 1315	0 0 63 <1 1003 1124 1062 1289	94 2 60 <1 917 1093 1023 1215
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	0 0 60 0 1010 1070 1150 1270 2060	0 0 63 <1 996 1114 1110 1315 2876	0 0 63 <1 1003 1124 1062 1289 3666	94 2 60 <1 917 1093 1023 1215 3621
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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	0 0 63 <1 996 1114 1110 1315 2876 current	0 0 63 <1 1003 1124 1062 1289 3666 history1	94 2 60 <1 917 1093 1023 1215 3621 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 <b>method</b> ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	0 0 63 <1 996 1114 1110 1315 2876 current 3	0 0 63 <1 1003 1124 1062 1289 3666 history1 3	94 2 60 <1 917 1093 1023 1215 3621 history2 2
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 <b>method</b> ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 Limit/base >30	0 0 63 <1 996 1114 1110 1315 2876 current 3 1	0 0 63 <1 1003 1124 1062 1289 3666 history1 3 2	94 2 60 <1 917 1093 1023 1215 3621 history2 2 2 <1
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> >30	0 0 63 <1 996 1114 1110 1315 2876 current 3 1 2	0 0 63 <1 1003 1124 1062 1289 3666 history1 3 2 1	94 2 60 <1 917 1093 1023 1215 3621 history2 2 2 <1 2
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> >20 <b>limit/base</b>	0 0 63 <1 996 1114 1110 1315 2876 <u>current</u> 3 1 2 2 2 <u>current</u> 0.5	0 0 63 <1 1003 1124 1062 1289 3666 history1 3 2 1 3 1 history1 0.5	94 2 60 <1 917 1093 1023 1215 3621 history2 2 2 <1 2 2 <1 2 1 2 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 60 0 1010 1070 1150 1270 2060 limit/base >30 >20 limit/base >33	0 0 63 <1 996 1114 1110 1315 2876 current 3 1 2 2 current	0 0 63 <1 1003 1124 1062 1289 3666 history1 3 2 1 1 history1	94 2 60 <1 917 1093 1023 1215 3621 history2 2 <1 2 <1 2 history2
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 imit/base >30 220 imit/base >3 >20	0 0 63 <1 996 1114 1110 1315 2876 <i>current</i> 3 1 2 2 <i>current</i> 0.5 7.6	0 0 63 <1 1003 1124 1062 1289 3666 history1 3 2 1 3 2 1 history1 0.5 8.1	94 2 60 <1 917 1093 1023 1215 3621 history2 2 <1 2 history2 0.2 5.8
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> >30 <b>imit/base</b> >3 >20	0 0 63 <1 996 1114 1110 1315 2876 <u>current</u> 3 1 2 2 <u>current</u> 0.5 7.6 19.5	0 0 63 <1 1003 1124 1062 1289 3666 history1 3 2 1 1 0.5 8.1 19.2	94 2 60 <1 917 1093 1023 1215 3621 history2 2 <1 2 history2 0.2 5.8 17.8
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 2060 2060 200 200 200 200 20	0 0 63 <1 996 1114 1110 1315 2876 <i>current</i> 3 1 2 2 <i>current</i> 0.5 7.6 19.5 <i>current</i>	0 0 63 <1 1003 1124 1062 1289 3666 history1 3 2 1 3 2 1 1 0.5 8.1 19.2 history1	94 2 60 <1 917 1093 1023 1215 3621 history2 2 <1 2 <1 2 history2 0.2 5.8 17.8 history2



# **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
6/23	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
0ct26/23	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
	Free Water	scalar	*Visual		NEG	NEG	NEG
	FLUID PROPE	ERTIES	method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445	15.4	13.7	13.5	14.0
	GRAPHS						
	Ferrous Alloys						
	iron	~	-				
	10- nickel						
	8						
	E 6						
	2						
	0 2	23	*****************	53			
	Dec2/22	Jun6/23		0ct26/23			
	– Non-ferrous Meta			0			
	<sup>10</sup> T						
	copper						
	8 - energenergenergenergenergenergenergener						
	6-						
	шd						
	4						
	2-						
	1227	3/23		3/23			
	Dec2/22	Jun6/23		0ct26/23			
	Viscosity @ 100°	C			Dees Norsha	_	
	<sup>19</sup>			10.	Base Number		
	18 - Abnormal						
	17			(B/H	.0 +		
i	Co <sup>16</sup> Base 00 15 35 14			рания 1940 г. – С.	.0		
	ē15-			ber (n			
	5				0.1		
				4.	.0		
	13 - Abnormal			(0)HOX Dw) Jaquing 4.			
	10				.0-		
	13 - Abnormal 12 -	23			0	23	
	13 - Abnormal	Jun6/23			.0-	Jun6/23	
oratory ple No. Number ue Number	13 - Abnormal 12 -		d :10 ed :10	.0 0ct56/23	Dec2/22	vironmental - 93	<b>2 - Muskego H</b> 400 College ( Muskego, V US 531

 Certificate L2367
 Test Package
 : FLEET

 To discuss this sample report, contact Customer Service at 1-800-237-1369.
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 \* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.
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 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)
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