

## **OIL ANALYSIS REPORT**

#### Area {UNASSIGNED} Machine Id 820050

Component
Diesel Engine
Eluid

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

## DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor.

#### Wear

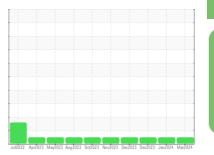
All component wear rates are normal.

#### 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 Rating Trend



NORMAL

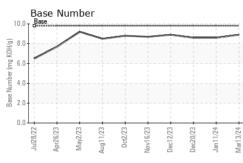
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0111888	GFL0108334	GFL0098257
Sample Date		Client Info		13 Mar 2024	11 Jan 2024	20 Dec 2023
Machine Age	hrs	Client Info		8174	7997	7885
Oil Age	hrs	Client Info		8174	7997	7885
Oil Changed		Client Info		Not Changd	N/A	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
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	>100	10	12	6
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	<1	<1	<1
Titanium	ppm	ASTM D5185m		0	<1	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	3	2	2
Lead	ppm	ASTM D5185m	>40	<1	0	0
Copper	ppm	ASTM D5185m	>330	<1	2	1
Tin	ppm	ASTM D5185m	>15	<1	<1	0
Vanadium	ppm	ASTM D5185m		0	<1	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 13	history1 10	history2 14
	ppm ppm					
Boron		ASTM D5185m	0	13	10	14
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	13 0	10 0	14 <1
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	13 0 56	10 0 62	14 <1 62
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	13 0 56 0	10 0 62 <1	14 <1 62 <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	13 0 56 0 883	10 0 62 <1 967	14 <1 62 <1 931
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	13 0 56 0 883 1086	10 0 62 <1 967 1127	14 <1 62 <1 931 1144
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	13 0 56 0 883 1086 962	10 0 62 <1 967 1127 1088	14 <1 62 <1 931 1144 1152
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	13 0 56 0 883 1086 962 1169	10 0 62 <1 967 1127 1088 1277	14 <1 62 <1 931 1144 1152 1286
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	13 0 56 0 883 1086 962 1169 3110	10 0 62 <1 967 1127 1088 1277 3153	14 <1 62 <1 931 1144 1152 1286 3232
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	13 0 56 0 883 1086 962 1169 3110 current	10 0 62 <1 967 1127 1088 1277 3153 history1	14 <1 62 <1 931 1144 1152 1286 3232 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 <b>limit/base</b>	13 0 56 0 883 1086 962 1169 3110 current 5	10 0 62 <1 967 1127 1088 1277 3153 history1 10	14 <1 62 <1 931 1144 1152 1286 3232 history2 6
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	0 0 60 1010 1070 1150 1270 2060 kimit/base >25	13 0 56 0 883 1086 962 1169 3110 current 5 4	10 0 62 <1 967 1127 1088 1277 3153 history1 10 4	14 <1 62 <1 931 1144 1152 1286 3232 history2 6 5
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>Jimit/base</b> >25	13 0 56 0 883 1086 962 1169 3110 current 5 4 6	10 0 62 <1 967 1127 1088 1277 3153 history1 10 4 6	14 <1 62 <1 931 1144 1152 1286 3232 history2 6 5 5
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>Imit/base</b> >25	13 0 56 0 883 1086 962 1169 3110 current 5 4 6 current	10 0 62 <1 967 1127 1088 1277 3153 history1 10 4 6 Kistory1	14 <1 62 <1 931 1144 1152 1286 3232 history2 6 5 5 5
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 limit/base >25 >20 limit/base	13 0 56 0 883 1086 962 1169 3110 current 5 4 6 current 0.3	10 0 62 <1 967 1127 1088 1277 3153 history1 10 4 6 <u>history1</u> 0.4	14 <1 62 <1 931 1144 1152 1286 3232 history2 6 5 5 5 history2 0.3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc 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> >25 >20 <i>limit/base</i> >3 >20	13 0 56 0 883 1086 962 1169 3110 current 5 4 6 current 0.3 6.2	10 0 62 <1 967 1127 1088 1277 3153 history1 10 4 6 <u>history1</u> 0.4 6.9	14 <1 62 <1 931 1144 1152 1286 3232 history2 6 5 5 history2 0.3 6.4
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> >25 <b>imit/base</b> >3 >20	13 0 56 0 883 1086 962 1169 3110 current 5 4 6 current 0.3 6.2 18.2	10 0 62 <1 967 1127 1088 1277 3153 history1 10 4 6 <u>history1</u> 0.4 6.9 18.7	14 <1 62 <1 931 1144 1152 1286 3232 history2 6 5 5 5 history2 0.3 6.4 18.2

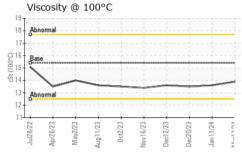
Page 1 of 2



# **OIL ANALYSIS REPORT**

VISUAL





		VISUAL		methoa	limit/base	current	nistory i	nistory2		
	White Metal	scalar	*Visual	NONE	NONE	NONE	NONE			
0ct2/23 +	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			
De No.	Jai De		scalar	*Visual	NORML	NORML	NORML	NORML		
		Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG		
		Free Water	scalar	*Visual		NEG	NEG	NEG		
		FLUID PROPI		method	limit/base	current	history1	history2		
		Visc @ 100°C	cSt	ASTM D445	15.4	13.9	13.6	13.5		
		GRAPHS Ferrous Alloys								
		<sup>120</sup> T								
Nov16/23 -	Dec20/23 - Jan 11/24 -	100 - iron iron								
Nov1	Jan1	80								
		튭 60								
		40								
		20-								
		Jul28/22 Apr26/23 May2/23 Aug11/23	0ct2/23 Nov16/23	Dec12/23 Dec20/23 Jan11/24	Mar13/24					
			2	De Ja	W					
		Non-ferrous Meta	ais							
	copper									
		8 - management								
		6								
		mdd								
		*	/							
		2								
		Jul28/22 Apr26/23 May2/23	0ct2/23 - Nov16/23 -	Dec12/23 - Dec20/23 - Jan11/24 -	3/24 -					
		Jul2 Apr2 May	Oct Nov1	Dec1 Dec2 Jan1	Mar13/24					
		Viscosity @ 100°	С			Base Number				
		19	1		10.0		<del></del>			
		18 - Abnormal			8.0					
		17			IB/HO)					
		G-16 Base 15 35 14				)				
		₹3 <sub>14</sub>			Jaquin 4.0	J				
					2 ase					
		12 Abnormal			° 2.0	)				
		11								
		Jul28/22 Apr26/23 May2/23 Aug11/23	0ct2/23 Nov16/23	Dec12/23 Dec20/23 Jan11/24	Mar13/24	Jui28/22 Apr26/23 May2/23	Aug11/23 0ct2/23 Nov16/23	Dec20/23 Jan 1 1/24		
		Ju Ap Mi	D	Der Jan	PM	Ju Mi	Nov G	Jair De		
	Laborator	y : WearCheck USA - 5	01 Madiso	n Ave., Carv	. NC 27513	GFI Envir	onmental - 652 - Fre	dericksburg Hauli		
	Sample No		Rece		Mar 2024			64 Houser Driv		
	Lab Numb	er : 06120672	Teste	e <b>d</b> :19	Mar 2024			dericksburg, V		
TING LABORATORY		ber : 10929505	Diagr	nosed : 19	Mar 2024 - W	les Davis	Original	US 2240		
tificate L2367	Test Packa	: FLEET Contact: WILLIAM MII t, contact Customer Service at 1-800-237-1369. wmilo@gflenv.cd								
	sample ren	ort, contact Customer Ser	vice at 1-8	300-237-1369	7		wm	ilo@aflenv co		

Submitted By: TECHNICIAN ACCOUNT