

## **OIL ANALYSIS REPORT**

Sample Rating Trend



Machine Id 721008

Component Diesel Engine 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

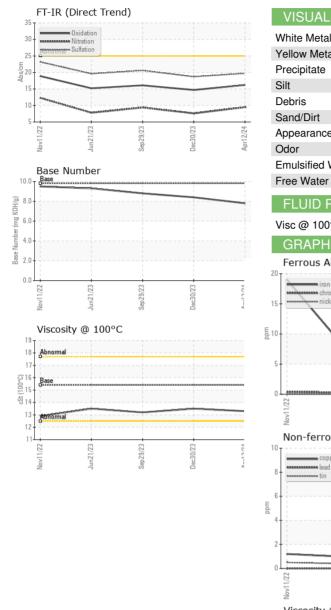
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFOR		methoa	iimii/base	current	riistory i	nistory2
Sample Number		Client Info		GFL0108467	GFL0103383	GFL0066219
Sample Date		Client Info		12 Apr 2024	30 Dec 2023	29 Sep 2023
Machine Age	hrs	Client Info		0	0	19632
Oil Age	hrs	Client Info		0	0	583
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				NORMAL	NORMAL	NORMAL
•				-		
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		ASTM D5185m	>120		4	8
-	ppm			10		
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>5	0	0	<1
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m		2	1	2
Lead	ppm	ASTM D5185m	>40	<1	0	<1
Copper	ppm	ASTM D5185m		<1	0	1
Tin	ppm		>15	<1	<1	<1
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
			11			histow.0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm		0	current 0	history1 2	nistory∠ 5
	ppm ppm	ASTM D5185m				
Boron		ASTM D5185m	0	0	2	5
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	0 0	2 0	5 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	0 0 61	2 0 56	5 0 59
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	0 0 61 <1	2 0 56 <1	5 0 59 <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	0 0 61 <1 978	2 0 56 <1 935	5 0 59 <1 909
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	0 0 61 <1 978 1085	2 0 56 <1 935 1018	5 0 59 <1 909 1027
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	0 0 61 <1 978 1085 1044	2 0 56 <1 935 1018 1065	5 0 59 <1 909 1027 1002
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 61 <1 978 1085 1044 1188	2 0 56 <1 935 1018 1065 1260	5 0 59 <1 909 1027 1002 1218
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	0 0 61 <1 978 1085 1044 1188 3432 current	2 0 56 <1 935 1018 1065 1260 3016 history1	5 0 59 <1 909 1027 1002 1218 2837 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm 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 61 <1 978 1085 1044 1188 3432 current 3	2 0 56 <1 935 1018 1065 1260 3016 history1 3	5 0 59 <1 909 1027 1002 1218 2837 history2 4
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	0 0 61 <1 978 1085 1044 1188 3432 current	2 0 56 <1 935 1018 1065 1260 3016 history1	5 0 59 <1 909 1027 1002 1218 2837 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm 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 >20	0 0 61 <1 978 1085 1044 1188 3432 current 3 3 0	2 0 56 <1 935 1018 1065 1260 3016 history1 3 2 2 <1	5 0 59 <1 909 1027 1002 1218 2837 history2 4 5 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>Imit/base</b> >25 -20 <b>Imit/base</b>	0 0 61 <1 978 1085 1044 1188 3432 current 3 3 0 0	2 0 56 <1 935 1018 1065 1260 3016 history1 3 2 <1 4 history1	5 0 59 <1 909 1027 1002 1218 2837 history2 4 5 2 2 history2
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 <b>Imit/base</b> >25 >20 <b>Imit/base</b>	0 0 61 <1 978 1085 1044 1188 3432 <i>current</i> 3 3 0 <i>current</i> 0.8	2 0 56 <1 935 1018 1065 1260 3016 history1 3 2 <1 4 history1 0.5	5 0 59 <1 909 1027 1002 1218 2837 history2 4 5 2 2 history2 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 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> >20	0 0 61 <1 978 1085 1044 1188 3432 current 3 3 3 0 current 0.8 9.5	2 0 56 <1 935 1018 1065 1260 3016 history1 3 2 <1 5 4 0.5 7.6	5 0 59 <1 909 1027 1002 1218 2837 history2 4 5 2 2 history2 1 9.4
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 <b>imit/base</b> >25 >20 <b>imit/base</b> >4 >20 >30	0 0 61 <1 978 1085 1044 1188 3432 <i>current</i> 3 3 0 <i>current</i> 0.8	2 0 56 <1 935 1018 1065 1260 3016 history1 3 2 <1 4 history1 0.5	5 0 59 <1 909 1027 1002 1218 2837 history2 4 5 2 2 history2 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 <b>imit/base</b> >25 >20 <b>imit/base</b> >20	0 0 61 <1 978 1085 1044 1188 3432 current 3 3 3 0 current 0.8 9.5	2 0 56 <1 935 1018 1065 1260 3016 history1 3 2 <1 5 4 0.5 7.6	5 0 59 <1 909 1027 1002 1218 2837 history2 4 5 2 2 history2 1 9.4
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 >20 <b>imit/base</b> >4 >20 >30	0 0 61 <1 978 1085 1044 1188 3432 <u>current</u> 3 3 0 <u>current</u> 0.8 9.5 19.7	2 0 56 <1 935 1018 1065 1260 3016 history1 3 2 <1 3 2 <1 history1 0.5 7.6 18.7	5 0 59 <1 909 1027 1002 1218 2837 history2 4 5 2 2 history2 1 9.4 20.6
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 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 2060 225 220 220 imit/base >20 >20 30 30	0 0 61 <1 978 1085 1044 1188 3432 current 3 3 3 0 current 0.8 9.5 19.7 current	2 0 56 <1 935 1018 1065 1260 3016 history1 3 2 <1 3 2 <1 0.5 7.6 18.7 history1	5 0 59 <1 909 1027 1002 1218 2837 history2 4 5 2 2 history2 1 9.4 20.6 history2

Contact/Location: See also GFL904,A,B,C, 927, 938 - Andy Kane - GFL927 Page 1 of 2



# **OIL ANALYSIS REPORT**



	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		Visual	NONE	NONE	NONE	NONE
	Sand/Dirt		Visual	NONE	NONE	NONE	NONE
Dec30/23 Apr12/24	Appearance		Visual	NORML	NORML	NORML	NORML
Ap	Odor		Visual	NORML	NORML	NORML	NORML
	Emulsified Water		Visual	>0.2	NEG	NEG	NEG
	Free Water	scalar *	Visual		NEG	NEG	NEG
	FLUID PROPE	RTIES	method	limit/base	current	history1	history2
	Visc @ 100°C	cSt A	ASTM D445	15.4	13.3	13.5	13.2
	GRAPHS						
	Ferrous Alloys						
Dec30/23 -	iron chromium						
Dec	15						
	Ē 10						
	5-		$\checkmark$				
		and a second second second					
	Nov11/22 Jun21/23	Sep 29/23	Dec30/23	Apr12/24			
1	≥ ⊰ Non-ferrous Metal			A			
1/23		5					
Dec30/23	copper 8						
	• measurement tin						
	6 <b>-</b>						
	8. 4-						
	2						
	0			and the second sec			
		9/23	0/23	2/24			
	Nov11/22 Jun21/23	Sep29/23	Dec30/23	Apr12/24			
	Viscosity @ 100°C				Base Number		
	18 - Abnormal			10.0	Base		
	17			 ₽ <sup>8.0</sup>			
	Base			0.8.0 - 0.9 KOH(0) - 0.9 Base Number - 0.9 Base Number - 0.9 Base Number			
	G_0 <sup>16</sup> Base 15 3 14			ber (rr			
				4.0-			
	13 Abnormal			<u>2.0</u>			
	12			0.0			
		Sep29/23 -	Dec30/23 -		Jun21/23 +	Sep29/23 -	Dec30/23 + Apr12/24 +
	Nov11/22 Jun21/23	Sep2	Deci	Aprl	Jun2	Sep 2	Deci
					<b></b> _		•••••
Laboratory Sample No.	: WearCheck USA - 50 : GFL0108467	1 Madison Receive		, NC 27513 Apr 2024	GFL ENVI	ronmental - 927 645	- Medford HC Jensen Drive
Lab Number	: 06153959	Tested	: 22	Apr 2024		510	Medford, WI
Unique Number		Diagno	<b>sed</b> : 22	Apr 2024 - We	s Davis	<b>A</b>	US 54541
Test Package s sample report.	: FLEET contact Customer Servi	ice at 1-800	0-237-1369	).		Conta	ct: Andy Kane

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) T: F:

Certificate 12367

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Contact/Location: See also GFL904,A,B,C, 927, 938 - Andy Kane - GFL927