

# **OIL ANALYSIS REPORT**

### Sample Rating Trend



#### Machine Id 514046 PETERBILT 567 Component

**Diesel Engine** 

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

## DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor.

#### Wear

Fluid

All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil.

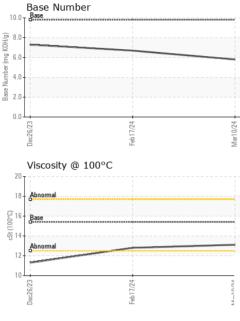
# Fluid Condition

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

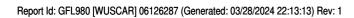
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0115310	GFL0103991	GFL0066574
Sample Date		Client Info		10 Mar 2024	17 Feb 2024	26 Dec 2023
Machine Age	hrs	Client Info		0	0	0
Oil Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				NORMAL	NORMAL	ABNORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	0.5
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	12	11	24
Chromium	ppm	ASTM D5185m	>20	0	0	0
Nickel	ppm	ASTM D5185m	>4	0	<1	<1
Titanium	ppm	ASTM D5185m		0	0	<1
Silver	ppm	ASTM D5185m	>3	<1	<1	<1
Aluminum	ppm	ASTM D5185m	>20	4	4	6
Lead	ppm	ASTM D5185m	>40	0	1	0
Copper	ppm	ASTM D5185m	>330	4	4	9
Tin	ppm	ASTM D5185m	>15	<1	<1	1
Vanadium	ppm	ASTM D5185m		0	<1	<1
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current	history1 16	history2 84
	ppm ppm					
Boron		ASTM D5185m	0	11	16	84
Boron Barium	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0	11 0	16 0	84 <1
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	11 0 42	16 0 51	84 <1 3
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	11 0 42 <1	16 0 51 <1	84 <1 3 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	11 0 42 <1 194	16 0 51 <1 249	84 <1 3 1 705
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	11 0 42 <1 194 2098	16 0 51 <1 249 2652	84 <1 3 1 705 1243
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	11 0 42 <1 194 2098 958	16 0 51 <1 249 2652 1108	84 <1 3 1 705 1243 736
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	11 0 42 <1 194 2098 958 1155	16 0 51 <1 249 2652 1108 1514	84 <1 3 1 705 1243 736 836
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	11 0 42 <1 194 2098 958 1155 3479	16 0 51 <1 249 2652 1108 1514 3859	84 <1 3 1 705 1243 736 836 3024
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	11 0 42 <1 194 2098 958 1155 3479 current	16 0 51 <1 249 2652 1108 1514 3859 history1	84 <1 3 1 705 1243 736 836 3024 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	11 0 42 <1 194 2098 958 1155 3479 current 12	16 0 51 <1 249 2652 1108 1514 3859 history1 12	84 <1 3 1 705 1243 736 836 3024 history2 ▲ 26
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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 <b>limit/base</b>	11 0 42 <1 194 2098 958 1155 3479 <u>current</u> 12 <1	16 0 51 <1 249 2652 1108 1514 3859 history1 12 <1	84 <1 3 1 705 1243 736 836 3024 history2 ▲ 26 3
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	11 0 42 <1 194 2098 958 1155 3479 current 12 <1 17	16 0 51 <1 249 2652 1108 1514 3859 history1 12 <1 14	84 <1 3 1 705 1243 736 836 3024 ► 100 ►
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 225 >25	11 0 42 <1 194 2098 958 1155 3479 current 12 <1 17 Current	16 0 51 <1 249 2652 1108 1514 3859 history1 12 <1 14 history1	84 <1 3 1 705 1243 736 836 3024 ► 26 3 20 ► 20 ► 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 limit/base >25 >20 limit/base >3	11 0 42 <1 194 2098 958 1155 3479 <i>current</i> 12 <1 17 <i>current</i> 0.1	16 0 51 <1 249 2652 1108 1514 3859 history1 12 <1 14 history1 0.1	84 <1 3 1 705 1243 736 836 3024 history2 26 3 20 history2 0.1
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 imit/base >25 >20 imit/base >3 >20	111 0 42 <1 194 2098 958 1155 3479 <u>current</u> 12 <1 17 <u>current</u> 0.1 8.9	16 0 51 <1 249 2652 1108 1514 3859 history1 12 <1 12 <1 14 14 0.1 8.2	84 <1 3 1 705 1243 736 836 3024
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	11 0 42 <1 194 2098 958 1155 3479 <u>current</u> 12 <1 17 <u>current</u> 0.1 8.9 20.1	16 0 51 <1 249 2652 1108 1514 3859 history1 12 <1 14 14 history1 0.1 8.2 18.0	84 <1 3 1 705 1243 736 836 3024 ▲ 26 3 20 history2 0.1 8.5 18.6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 2060 225 20 220 220 20 3 20 20 20 3 3 20 20 20 20 20 20 20 20 20 20 20 20 20	11 0 42 <1 194 2098 958 1155 3479 <i>current</i> 12 <1 17 <i>current</i> 0.1 8.9 20.1 <i>current</i>	16 0 51 <1 249 2652 1108 1514 3859 history1 12 <1 14 14 history1 0.1 8.2 18.0 history1	84 <1 3 1 705 1243 736 836 3024 ► 26 3 20 ► 26 3 20 ► 18.5 18.6 ► 18.6



# **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		
Feb17/24	Appearance Odor	scalar	*Visual	NORML	NORML	NORML	NORML		
Feb 1	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		method	limit/base	current	history1	history2		
	Visc @ 100°C	cSt	ASTM D445		13.11	12.8	11.3		
	GRAPHS	001	7101111 0 1 1 0	10.4	10.11	12.0	11.0		
	Ferrous Alloys								
	<sup>25</sup> T								
- 1/24	iron iron								
Feb 17/24	20 - nickel								
	15								
	m dd								
	10-								
	5-								
	5								
	0	***							
	Dec26/23	-eb 17/24		Mar10/24					
	Dec	Les Les		Mai					
	Non-ferrous Meta	ls							
	10 copper								
	8 - lead								
	E 6								
	2 -								
	Contraction of the second	STATE OF TAXABLE PARTY	The Party of the P						
	123	/24 -		724					
	Dec26/23	Feb17/24		Mar10/24					
	Viscosity @ 100°C			2					
	<sup>19</sup> T			10.0	Base Number	*****			
	18 - Abnormal			⇒ 8.0					
	16 Base			B/HO					
	6 15			Ě 6.0					
	0015 4015 4017			6.0 6.0 KOH/dl 4.0					
	13 Abnormal			4.0					
	12			<sup>20</sup> 2.0	-				
	11-								
	104	24 -		0.0		24			
	Dec26/23	Feb17/24		Mar10/24	Dec26/23	Feb17/24			
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) Loborat					GFL Envi	ronmental - 980 -			
Laborate	No. GEL0115310	: GFL0115310 Received : 22 Mar 2024 1820							
Sample							Houston, T		
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Sample Lab Nun Unique Nu	nber : 06126287 mber : 10940438			Mar 2024 - Don	Baldridge	Contac	US 770		
Sample Lab Nun Unique Nu ficate L2367 Test Pac	nber : 06126287	Diagn	<b>osed</b> : 28	Mar 2024 - Don	Baldridge				



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Contact/Location: Edwin Collins - GFL980