

## **OIL ANALYSIS REPORT**

Sample Number

Sample Date

## Machine Id **PETERBILT 210006**

Componenτ 9 Diesel Engine

Fluid PETRO CANADA DURON SHP 15W40 (5 GAL)

## DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor.

#### Wear

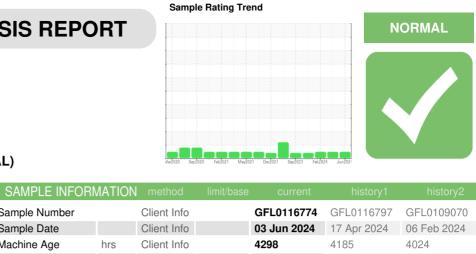
All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil.

### Fluid Condition

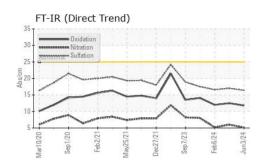
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

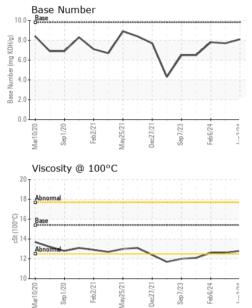


CONTAMINATION         method         limit/base         current         history1         history1           Fuel         WC Method         >5         <1.0         <1.0         <1.0         <1.0           Glycol         WC Method         >0.2         NEG         NEG         NEG           Glycol         WC Method         NEG         NEG         NEG           VEAR METALS         method         limit/base         current         history1         history1           Iron         ppm         ASTM D5185m         >20         0         0         0           Nickel         ppm         ASTM D5185m         >20         0         0         0           Silver         ppm         ASTM D5185m         >3         0         0         0           Aluminum         ppm         ASTM D5185m         >30         0         0         0           Copper         ppm         ASTM D5185m         >30         0         0         0           Current         ppm         ASTM D5185m         >30         0         0         0           Current         ppm         ASTM D5185m         >30         0         1         0           Coppe	CD LOL-	0010020	IT API 2024	00 0011 2024				Campic Date
Oil Changed         Client Info         Not Changd         N/A         N/A           Sample Status         Image Status         Nor MAL         NORMAL         NORMAL	4	4024	4185	4298		Client Info	hrs	Machine Age
Sample Status         Image: Sample Status         NORMAL         Normation and and and and and and and and and an	2	2542	2703	2816		Client Info	hrs	Oil Age
Sample Status         NORMAL         NORMAL		N/A	N/A	Not Changd		Client Info		Oil Changed
CONTAMINATION         method         limit/base         current         history1         history1           Fuel         WC Method         >5         <1.0         <1.0         <1.0           Water         WC Method         >0.2         NEG         NEG         NEG           Glycol         WC Method         >0.2         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         history1           Iron         ppm         ASTM D5185m         >100         3         7         4           Chromium         ppm         ASTM D5185m         >20         0         0         0           Nickel         ppm         ASTM D5185m         >3         0         0         0           Aluminum         ppm         ASTM D5185m         >30         0         0         0           Aduminum         ppm         ASTM D5185m         >20         4         4         3           Lead         ppm         ASTM D5185m         >20         4         4         3           Lead         ppm         ASTM D5185m         >0         0         0         0           Cadmium<	RMAL	NORMAL	NORMAL	-				Sample Status
Fuel         WC Method         >5         <1.0	history2	histo	historv1	current	limit/base	method	ON	
Water         WC Method         >0.2         NEG         NEG         NEG         NEG           Glycol         WC Method         NEG         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         history1           Iron         ppm         ASTM D5185m         >100         3         7         4           Chromium         ppm         ASTM D5185m         >20         0         0         0           Nickel         ppm         ASTM D5185m         >4         0         0         -1           Silver         ppm         ASTM D5185m         >3         0         0         -1         0           Copper         ppm         ASTM D5185m         >20         4         4         3           Lead         ppm         ASTM D5185m         >40         0         <1								
Glycol         WC Method         NEG         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         history1         history1           Iron         ppm         ASTM D5185m         >100         3         7         4           Chromium         ppm         ASTM D5185m         >20         0         0         0           Nickel         ppm         ASTM D5185m         >4         0         0         0           Silver         ppm         ASTM D5185m         >3         0         0         0           Aluminum         ppm         ASTM D5185m         >20         4         4         3           Lead         ppm         ASTM D5185m         >330         <1								
WEAR METALS         method         limit/base         current         history1         history1           Iron         ppm         ASTM D5185m         >100         3         7         4           Chromium         ppm         ASTM D5185m         >20         0         0         0           Nickel         ppm         ASTM D5185m         >20         0         0         0           Silver         ppm         ASTM D5185m         >3         0         0         0           Aluminum         ppm         ASTM D5185m         >3         0         0         0           Aluminum         ppm         ASTM D5185m         >20         4         4         3           Lead         ppm         ASTM D5185m         >20         4         4         3           Lead         ppm         ASTM D5185m         >40         0         <1					20.L			
Iron         ppm         ASTM D5185m         >100         3         7         4           Chromium         ppm         ASTM D5185m         >20         0         0         0           Nickel         ppm         ASTM D5185m         >4         0         0         0           Silver         ppm         ASTM D5185m         >3         0         0         0           Aluminum         ppm         ASTM D5185m         >30         0         0         0           Aluminum         ppm         ASTM D5185m         >20         4         4         3           Lead         ppm         ASTM D5185m         >20         4         4         3           Copper         ppm         ASTM D5185m         >330         <1	history2				limit/booo		2	
Chromium         ppm         ASTM D5185m         >20         0         0         0           Nickel         ppm         ASTM D5185m         >4         0         0         0           Titanium         ppm         ASTM D5185m         >3         0         0         0           Silver         ppm         ASTM D5185m         >20         4         4         3           Lead         ppm         ASTM D5185m         >20         4         4         3           Lead         ppm         ASTM D5185m         >20         4         4         3           Lead         ppm         ASTM D5185m         >40         0         <1								
Nickel         ppm         ASTM D5185m         >4         0         0         0           Titanium         ppm         ASTM D5185m         >3         0         0         <1								
Titanium         ppm         ASTM D5185m         0         0         <1           Silver         ppm         ASTM D5185m         >3         0         0         0           Aluminum         ppm         ASTM D5185m         >20         4         4         3           Lead         ppm         ASTM D5185m         >330         <1								
Silver         ppm         ASTM D5185m         >3         0         0         0           Aluminum         ppm         ASTM D5185m         >20         4         4         3           Lead         ppm         ASTM D5185m         >40         0         <1         0           Copper         ppm         ASTM D5185m         >330         <1         <1         0           Tin         ppm         ASTM D5185m         >15         <1         <1         <1         <1           Vanadium         ppm         ASTM D5185m         >15         <1         <1         <1         <1           Vanadium         ppm         ASTM D5185m         0         <14         13         21           Cadmium         ppm         ASTM D5185m         0         <14         13         21           Barium         ppm         ASTM D5185m         0         <1         0         0           Magnesium         ppm         ASTM D5185m         0         <1         0         0           Magnesium         ppm         ASTM D5185m         1010         829         798         790           Calcium         ppm         ASTM D5185m         1				-	>4			
Aluminum         ppm         ASTM D5185m         >20         4         4         3           Lead         ppm         ASTM D5185m         >40         0         <1							ppm	
Lead         ppm         ASTM D5185m         >40         0         <1         0           Copper         ppm         ASTM D5185m         >330         <1				-			ppm	
Copper         ppm         ASTM D5185m         >330         <1         <1         0           Tin         ppm         ASTM D5185m         >15         <1		3	4		>20	ASTM D5185m	ppm	Aluminum
Tin         ppm         ASTM D5185m         >15         <1         <1         <1           Vanadium         ppm         ASTM D5185m         0         <1		0	<1	0	>40	ASTM D5185m	ppm	Lead
Vanadium         ppm         ASTM D5185m         0         <1         <1           Cadmium         ppm         ASTM D5185m         0         0         0         0           ADDITIVES         method         limit/base         current         history1         hist           Boron         ppm         ASTM D5185m         0         14         13         21           Barium         ppm         ASTM D5185m         0         <1		0	<1	<1	>330	ASTM D5185m	ppm	Copper
Cadmium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history1           Boron         ppm         ASTM D5185m         0         14         13         21           Barium         ppm         ASTM D5185m         0         <1	:1	<1	<1	<1	>15	ASTM D5185m	ppm	Tin
ADDITIVES         method         limit/base         current         history1         history1           Boron         ppm         ASTM D5185m         0         14         13         21           Barium         ppm         ASTM D5185m         0         <1	:1	<1	<1	0		ASTM D5185m	ppm	Vanadium
Boron         ppm         ASTM D5185m         0         14         13         21           Barium         ppm         ASTM D5185m         0         <1         0         0           Molybdenum         ppm         ASTM D5185m         60         56         60         61           Manganese         ppm         ASTM D5185m         0         <1         <1         0         0           Magnesium         ppm         ASTM D5185m         1010         829         798         790           Calcium         ppm         ASTM D5185m         1010         829         798         790           Calcium         ppm         ASTM D5185m         1070         1051         1146         1088           Phosphorus         ppm         ASTM D5185m         1270         1119         1113         1127           Sulfur         ppm         ASTM D5185m         2060         3242         3362         294*           CONTAMINANTS         method         limit/base         current         history1         hist           Silicon         ppm         ASTM D5185m         >20         8         7         5           INFRA-RED         method         limit/b		0	0	0		ASTM D5185m	ppm	Cadmium
Barium         ppm         ASTM D5185m         0         <1	history2	histo	history1	current	limit/base	method		ADDITIVES
Molybdenum         ppm         ASTM D5185m         60         56         60         61           Manganese         ppm         ASTM D5185m         0         <1	1	21	13	14	0	ASTM D5185m	ppm	Boron
Manganese         ppm         ASTM D5185m         0         <1         <1         0           Magnesium         ppm         ASTM D5185m         1010         829         798         790           Calcium         ppm         ASTM D5185m         1010         829         798         790           Calcium         ppm         ASTM D5185m         1070         1051         1146         1088           Phosphorus         ppm         ASTM D5185m         1270         1018         945         964           Zinc         ppm         ASTM D5185m         1270         1119         1113         1127           Sulfur         ppm         ASTM D5185m         2060         3242         3362         294*           CONTAMINANTS         method         limit/base         current         history1         history1           Silicon         ppm         ASTM D5185m         >25         4         2         3           Sodium         ppm         ASTM D5185m         >20         8         7         5           INFRA-RED         method         limit/base         current         history1         history1           Soot %         %         'ASTM D7844		0	0	<1	0	ASTM D5185m	ppm	Barium
Magnesium         ppm         ASTM D5185m         1010         829         798         790           Calcium         ppm         ASTM D5185m         1070         1051         1146         1085           Phosphorus         ppm         ASTM D5185m         1070         1018         945         964           Zinc         ppm         ASTM D5185m         1270         1119         1113         1127           Sulfur         ppm         ASTM D5185m         2060         3242         3362         2943           CONTAMINANTS         method         limit/base         current         history1         hist           Silicon         ppm         ASTM D5185m         >25         4         2         3           Sodium         ppm         ASTM D5185m         >20         8         7         5           INFRA-RED         method         limit/base         current         history1         history1           Nitration         Abs/cm         *ASTM D7844         >3         0.1         0.1         0.1           Nitration         Abs/.mm         *ASTM D7415         >30         16.4         17.0         16.6	1	61	60	56	60	ASTM D5185m	ppm	Molybdenum
Calcium         ppm         ASTM D5185m         1070         1051         1146         1088           Phosphorus         ppm         ASTM D5185m         1150         1018         945         964           Zinc         ppm         ASTM D5185m         1270         1119         1113         1127           Sulfur         ppm         ASTM D5185m         2060         3242         3362         2943           CONTAMINANTS         method         limit/base         current         history1         his           Silicon         ppm         ASTM D5185m         >25         4         2         3           Sodium         ppm         ASTM D5185m         >25         4         2         3           Sodium         ppm         ASTM D5185m         >20         8         7         5           INFRA-RED         method         limit/base         current         history1         hist           Soot %         %         *ASTM D7844         >3         0.1         0.1         0.1           Nitration         Abs/cm         *ASTM D7624         >20         5.1         6.0         5.2           Sulfation         Abs/.1mm         *ASTM D7415         3		0	<1	<1	0	ASTM D5185m	ppm	Manganese
Phosphorus         ppm         ASTM D5185m         1150         1018         945         964           Zinc         ppm         ASTM D5185m         1270         1119         1113         1127           Sulfur         ppm         ASTM D5185m         2060         3242         3362         2943           CONTAMINANTS         method         limit/base         current         history1         his           Silicon         ppm         ASTM D5185m         >25         4         2         3           Sodium         ppm         ASTM D5185m         >25         4         2         3           Sodium         ppm         ASTM D5185m         >25         4         2         3           Sodium         ppm         ASTM D5185m         >20         8         7         5           INFRA-RED         method         limit/base         current         history1         his           Soot %         %         *ASTM D7844         >3         0.1         0.1         0.1           Nitration         Abs/cm         *ASTM D7624         >20         5.1         6.0         5.2           Sulfation         Abs/.1mm         *ASTM D7415         >30	90	790	798	829	1010	ASTM D5185m	ppm	Magnesium
Zinc         ppm         ASTM D5185m         1270         1119         1113         1127           Sulfur         ppm         ASTM D5185m         2060         3242         3362         2947           CONTAMINANTS         method         limit/base         current         history1         his           Silicon         ppm         ASTM D5185m         >25         4         2         3           Sodium         ppm         ASTM D5185m         >25         4         2         3           Sodium         ppm         ASTM D5185m         >25         4         2         3           Potassium         ppm         ASTM D5185m         >20         8         7         5           INFRA-RED         method         limit/base         current         history1         his           Soot %         %         *ASTM D7844         >3         0.1         0.1         0.1           Nitration         Abs/cm         *ASTM D7624         >20         5.1         6.0         5.2           Sulfation         Abs/.1mm         *ASTM D7415         >30         16.4         17.0         16.6	085	1085	1146	1051	1070	ASTM D5185m	ppm	Calcium
Sulfur         ppm         ASTM D5185m         2060         3242         3362         294           CONTAMINANTS         method         limit/base         current         history1         his           Silicon         ppm         ASTM D5185m         >25         4         2         3           Sodium         ppm         ASTM D5185m         >25         4         2         3           Sodium         ppm         ASTM D5185m         >20         8         7         5           INFRA-RED         method         limit/base         current         history1         hist           Soot %         %         *ASTM D7844         >3         0.1         0.1         0.1           Nitration         Abs/cm         *ASTM D7624         >20         5.1         6.0         5.2           Sulfation         Abs/.1mm         *ASTM D7415         >30         16.4         17.0         16.6	64	964	945	1018	1150	ASTM D5185m	ppm	Phosphorus
CONTAMINANTS         method         limit/base         current         history1         history1           Silicon         ppm         ASTM D5185m         >25         4         2         3           Sodium         ppm         ASTM D5185m         >25         4         2         3           Potassium         ppm         ASTM D5185m         >20         8         7         5           INFRA-RED         method         limit/base         current         history1         history1           Soot %         %         *ASTM D7844         >3         0.1         0.1         0.1           Nitration         Abs/cm         *ASTM D7624         >20         5.1         6.0         5.2           Sulfation         Abs/.1mm         *ASTM D7415         >30         16.4         17.0         16.6	127	1127	1113	1119	1270	ASTM D5185m	ppm	Zinc
Silicon         ppm         ASTM D5185m         >25         4         2         3           Sodium         ppm         ASTM D5185m         >25         4         2         3           Potassium         ppm         ASTM D5185m         >20         8         7         5           INFRA-RED         method         limit/base         current         history1         his           Soot %         %         *ASTM D7844         >3         0.1         0.1         0.1           Nitration         Abs/cm         *ASTM D7624         >20         5.1         6.0         5.2           Sulfation         Abs/.1mm         *ASTM D7415         >30         16.4         17.0         16.4	941	2941	3362	3242	2060	ASTM D5185m	ppm	Sulfur
Sodium         ppm         ASTM D5185m         <1         <1         1           Potassium         ppm         ASTM D5185m<>20         8         7         5           INFRA-RED         method         limit/base         current         history1         his           Soot %         %         *ASTM D7844<>3         0.1         0.1         0.1           Nitration         Abs/cm         *ASTM D7624<>20         5.1         6.0         5.2           Sulfation         Abs/.1mm         *ASTM D7415<>30         16.4         17.0         16.6	history2	histo	history1	current	limit/base	method	TS	CONTAMINAN
Potassium         ppm         ASTM D5185m         >20         8         7         5           INFRA-RED         method         limit/base         current         history1         his           Soot %         %         *ASTM D7844         >3         0.1         0.1         0.1           Nitration         Abs/cm         *ASTM D7624         >20         5.1         6.0         5.2           Sulfation         Abs/.1mm         *ASTM D7415         >30         16.4         17.0         16.6		3	2	4	>25	ASTM D5185m	ppm	Silicon
INFRA-RED         method         limit/base         current         history1         his           Soot %         %         *ASTM D7844         >3         0.1         0.1         0.1           Nitration         Abs/cm         *ASTM D7624         >20         5.1         6.0         5.2           Sulfation         Abs/.1mm         *ASTM D7415         >30         16.4         17.0         16.6		1	<1	<1		ASTM D5185m	ppm	Sodium
Soot %         %         *ASTM D7844         >3         0.1         0.1         0.1           Nitration         Abs/cm         *ASTM D7624         >20         5.1         6.0         5.2           Sulfation         Abs/.1mm         *ASTM D7415         >30         16.4         17.0         16.6		5	7	8	>20	ASTM D5185m	ppm	Potassium
Nitration         Abs/cm         *ASTM D7624         >20         5.1         6.0         5.2           Sulfation         Abs/.1mm         *ASTM D7415         >30         16.4         17.0         16.6	history2	histo	history1	current	limit/base	method		INFRA-RED
Nitration         Abs/cm         *ASTM D7624         >20         5.1         6.0         5.2           Sulfation         Abs/.1mm         *ASTM D7415         >30         16.4         17.0         16.6	.1	0.1	0.1	0.1	>3	*ASTM D7844	%	Soot %
Sulfation Abs/.1mm *ASTM D7415 >30 16.4 17.0 16.6	.2	5.2	6.0		>20		Abs/cm	Nitration
		16.6						
FLUID DEGRADATION method limit/base current history1 his	history2	histo	history1	current	limit/base	method	ATION	FLUID DEGRAD
Oxidation Abs/.1mm *ASTM D7414 >25 <b>11.8</b> 12.5 12.0	2.0	12.0	12.5	11.8	>25	*ASTM D7414	Abs/.1mm	Oxidation
Base Number (BN)         mg KOH/g         ASTM D2896         9.8         8.1         7.7         7.8	.8	7.8	7.7		9.8	ASTM D2896	mg KOH/g	Base Number (BN)



# **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
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
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	RTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	12.8	12.6	12.6
GRAPHS						

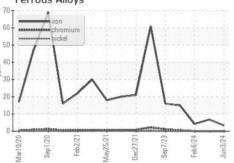
Ferrous Alloys

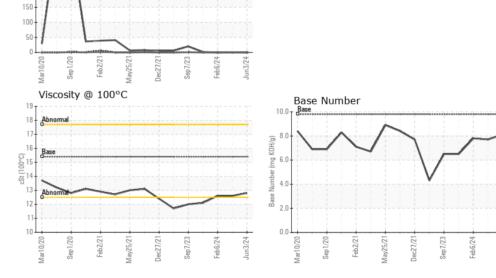
Non-ferrous Metals

ead

400

350





Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 009 - Fairburn Sample No. : 05 Jun 2024 : GFL0116774 Received 6905 Roosevelt Hwy Lab Number : 06199842 Tested : 05 Jun 2024 Fairburn, GA US 30213 Unique Number : 11061965 Diagnosed : 05 Jun 2024 - Wes Davis Test Package : FLEET Contact: Eric Jones Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. erjones@gflenv.com T: (678)630-9927 \* - 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) E:

Report Id: GFL009 [WUSCAR] 06199842 (Generated: 06/05/2024 16:41:27) Rev: 1

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