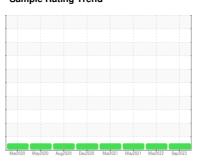


# **OIL ANALYSIS REPORT**

## Sample Rating Trend



NORMAL



# PETERBILT 10

Component

**Diesel Engine** 

PETRO CANADA DURON XL SYN BLEND 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

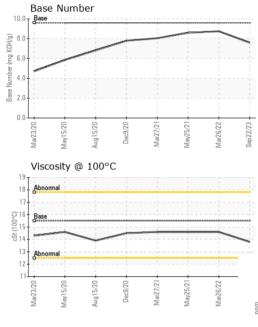
## **Fluid Condition**

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

Sample Date	15W40 ( GAL)		Mar2020 N	Tay2020 Aug2020 Dec20	20 Mar2021 May2021 Mar2022	Sep 2023	
Client Info	SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Machine Age         mls         Client Info         530000         379217         309558           Oil Age         mls         Client Info         20000         20000         0           Oil Changed         Client Info         Changed         Changed         Changed         Changed         Changed         Changed         Changed         NORMAL         1.0         4.0         1.0         4.0         1.0         4.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0	Sample Number		Client Info		PCA0105059	PCA0054252	PCA0030448
Oil Age         mls         Client Info         20000         20000         0           Oil Changed Sample Status         Client Info         Changed Changed Changed Changed Changed NoRMAL         NORMAL NORMAL	Sample Date		Client Info		22 Sep 2023	26 Mar 2022	25 May 2021
Cilichanged   Cilicht Info   NoRMAL   NORMAL   NORMAL   NORMAL	Machine Age	mls	Client Info		530000	379217	309558
NORMAL   NORMAL   NORMAL   CONTAMINATION   method   imilibase   current   history1   history2	Oil Age	mls	Client Info		20000	20000	0
Fuel	Oil Changed		Client Info		Changed	Changed	Changed
Fuel	Sample Status				NORMAL	NORMAL	NORMAL
WEAR METALS         method         Imitibase         current         history1         history2           Iron         ppm         ASTM D5185m         >110         4         43         47           Chromium         ppm         ASTM D5185m         >4         0         5         4           Nickel         ppm         ASTM D5185m         >2         0         0         <1           Silver         ppm         ASTM D5185m         >2         0         0         0           Silver         ppm         ASTM D5185m         >2         0         0         0           Aluminum         ppm         ASTM D5185m         >2         0         0         0           Lead         ppm         ASTM D5185m         >45         0         0         <1           Copper         ppm         ASTM D5185m         >4         <1         <1         <1         <1           Antimony         ppm         ASTM D5185m         0         0         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1<	CONTAMINAT	ION	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>5	<1.0	<1.0	<1.0
Iron	Glycol		WC Method		NEG	NEG	NEG
Chromium         ppm         ASTM D5185m         >4         0         5         4           Nickel         ppm         ASTM D5185m         >2         0         0         <1	WEAR METAL	S	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>110	4	43	47
Titanium	Chromium	ppm	ASTM D5185m	>4	0	5	4
Silver	Nickel	ppm	ASTM D5185m	>2	0	0	<1
Aluminum	Titanium		ASTM D5185m		0	<1	<1
Lead	Silver	ppm	ASTM D5185m	>2	0	0	0
Copper         ppm         ASTM D5185m         >85         <1         3         3           Tin         ppm         ASTM D5185m         >4         <1	Aluminum	ppm	ASTM D5185m	>25	<1	14	10
Tin	Lead	ppm	ASTM D5185m	>45	0	0	<1
Antimony	Copper	ppm	ASTM D5185m	>85	<1	3	3
Vanadium         ppm         ASTM D5185m         0         0         <1           Cadmium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         1         24         6         7           Barium         ppm         ASTM D5185m         1         0         0         0           Molybdenum         ppm         ASTM D5185m         1         0         0         0           Manganese         ppm         ASTM D5185m         1         0         <1         <1           Magnesium         ppm         ASTM D5185m         1010         907         958         924           Calcium         ppm         ASTM D5185m         1070         1108         1112         1189           Phosphorus         ppm         ASTM D5185m         1270         1208         1296         1204           Sulfur         ppm         ASTM D5185m         2060         3053         2580         2563           CONTAMINANTS         method         limit/base         current         history1         <	Tin	ppm	ASTM D5185m	>4	<1	<1	<1
ADDITIVES	Antimony	ppm	ASTM D5185m				0
ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         1         24         6         7           Barium         ppm         ASTM D5185m         1         0         0         0           Molybdenum         ppm         ASTM D5185m         60         63         57         60           Manganese         ppm         ASTM D5185m         1         0         <1	Vanadium	ppm	ASTM D5185m		0	0	<1
Boron   ppm   ASTM D5185m   1   24   6   7	Cadmium	ppm	ASTM D5185m		0	0	0
Barium         ppm         ASTM D5185m         1         0         0         0           Molybdenum         ppm         ASTM D5185m         60         63         57         60           Manganese         ppm         ASTM D5185m         1         0         <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum         ppm         ASTM D5185m         60         63         57         60           Manganese         ppm         ASTM D5185m         1         0         <1         <1           Magnesium         ppm         ASTM D5185m         1010         907         958         924           Calcium         ppm         ASTM D5185m         1070         1108         1112         1189           Phosphorus         ppm         ASTM D5185m         1150         1000         1049         1033           Zinc         ppm         ASTM D5185m         1270         1208         1296         1204           Sulfur         ppm         ASTM D5185m         2060         3053         2580         2563           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >30         6         12         8           Sodium         ppm         ASTM D5185m         >20         2         3         2           Potassium         ppm         ASTM D5185m         >20         2         3         2           INFRA-RED         method         limit/base	Boron	ppm	ASTM D5185m	1	24	6	7
Manganese         ppm         ASTM D5185m         1         0         <1         <1           Magnesium         ppm         ASTM D5185m         1010         907         958         924           Calcium         ppm         ASTM D5185m         1070         1108         1112         1189           Phosphorus         ppm         ASTM D5185m         1150         1000         1049         1033           Zinc         ppm         ASTM D5185m         1270         1208         1296         1204           Sulfur         ppm         ASTM D5185m         2060         3053         2580         2563           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >30         6         12         8           Sodium         ppm         ASTM D5185m         2         3         2           Potassium         ppm         ASTM D5185m         >20         2         3         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7624         >20 <td>Barium</td> <td>ppm</td> <td>ASTM D5185m</td> <td>1</td> <th>0</th> <td>0</td> <td>0</td>	Barium	ppm	ASTM D5185m	1	0	0	0
Magnesium         ppm         ASTM D5185m         1010         907         958         924           Calcium         ppm         ASTM D5185m         1070         1108         1112         1189           Phosphorus         ppm         ASTM D5185m         1150         1000         1049         1033           Zinc         ppm         ASTM D5185m         1270         1208         1296         1204           Sulfur         ppm         ASTM D5185m         2060         3053         2580         2563           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >30         6         12         8           Sodium         ppm         ASTM D5185m         2         3         2           Potassium         ppm         ASTM D5185m         >20         2         3         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7624         >20         8.3         7.0         9.5           Sulfation         Abs/.1mm         *ASTM D7415	Molybdenum	ppm	ASTM D5185m	60	63	57	60
Calcium         ppm         ASTM D5185m         1070         1108         1112         1189           Phosphorus         ppm         ASTM D5185m         1150         1000         1049         1033           Zinc         ppm         ASTM D5185m         1270         1208         1296         1204           Sulfur         ppm         ASTM D5185m         2060         3053         2580         2563           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >30         6         12         8           Sodium         ppm         ASTM D5185m         20         2         3         2           Potassium         ppm         ASTM D5185m         >20         2         3         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.2         0.4         0.9           Nitration         Abs/.1mm         *ASTM D7415         >30         19.6         19.3         21.8           FLUID DEGRADATION         metho	Manganese	ppm	ASTM D5185m	1	0	<1	<1
Phosphorus         ppm         ASTM D5185m         1150         1000         1049         1033           Zinc         ppm         ASTM D5185m         1270         1208         1296         1204           Sulfur         ppm         ASTM D5185m         2060         3053         2580         2563           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >30         6         12         8           Sodium         ppm         ASTM D5185m         2         3         2           Potassium         ppm         ASTM D5185m         >20         2         3         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.2         0.4         0.9           Nitration         Abs/cm         *ASTM D7624         >20         8.3         7.0         9.5           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.6         19.3         21.8           FLUID DEGRADATION         method	Magnesium	ppm	ASTM D5185m	1010	907	958	924
Zinc         ppm         ASTM D5185m         1270         1208         1296         1204           Sulfur         ppm         ASTM D5185m         2060         3053         2580         2563           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >30         6         12         8           Sodium         ppm         ASTM D5185m         2         3         2           Potassium         ppm         ASTM D5185m         >20         2         3         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.2         0.4         0.9           Nitration         Abs/cm         *ASTM D7624         >20         8.3         7.0         9.5           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.6         19.3         21.8           FLUID DEGRADATION method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414	Calcium	ppm	ASTM D5185m	1070	1108	1112	1189
Sulfur         ppm         ASTM D5185m         2060         3053         2580         2563           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >30         6         12         8           Sodium         ppm         ASTM D5185m         2         3         2           Potassium         ppm         ASTM D5185m         >20         2         3         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.2         0.4         0.9           Nitration         Abs/cm         *ASTM D7624         >20         8.3         7.0         9.5           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.6         19.3         21.8           FLUID DEGRADATION method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         17.1         15.0         18	Phosphorus	ppm	ASTM D5185m	1150	1000	1049	1033
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >30         6         12         8           Sodium         ppm         ASTM D5185m         2         3         2           Potassium         ppm         ASTM D5185m         >20         2         3         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.2         0.4         0.9           Nitration         Abs/cm         *ASTM D7624         >20         8.3         7.0         9.5           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.6         19.3         21.8           FLUID DEGRADATION method limit/base current history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         17.1         15.0         18	Zinc	ppm	ASTM D5185m	1270	1208	1296	1204
Silicon         ppm         ASTM D5185m         >30         6         12         8           Sodium         ppm         ASTM D5185m         2         3         2           Potassium         ppm         ASTM D5185m         >20         2         3         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.2         0.4         0.9           Nitration         Abs/cm         *ASTM D7624         >20         8.3         7.0         9.5           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.6         19.3         21.8           FLUID DEGRADATION method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         17.1         15.0         18	Sulfur	ppm	ASTM D5185m	2060	3053	2580	2563
Sodium         ppm         ASTM D5185m         2         3         2           Potassium         ppm         ASTM D5185m         >20         2         3         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.2         0.4         0.9           Nitration         Abs/cm         *ASTM D7624         >20         8.3         7.0         9.5           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.6         19.3         21.8           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         17.1         15.0         18	CONTAMINAN	TS	method	limit/base	current	history1	history2
Potassium         ppm         ASTM D5185m         >20         2         3         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.2         0.4         0.9           Nitration         Abs/cm         *ASTM D7624         >20         8.3         7.0         9.5           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.6         19.3         21.8           FLUID DEGRADATION method limit/base current history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         17.1         15.0         18	Silicon	ppm	ASTM D5185m	>30	6	12	8
INFRA-RED	Sodium	ppm	ASTM D5185m		2	3	2
Soot %         %         *ASTM D7844 >3         0.2         0.4         0.9           Nitration         Abs/cm         *ASTM D7624 >20         8.3         7.0         9.5           Sulfation         Abs/.1mm         *ASTM D7415 >30         19.6         19.3         21.8           FLUID DEGRADATION method limit/base current history1         history2           Oxidation         Abs/.1mm         *ASTM D7414 >25         17.1         15.0         18	Potassium	ppm	ASTM D5185m	>20	2	3	2
Nitration         Abs/cm         *ASTM D7624         >20         8.3         7.0         9.5           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.6         19.3         21.8           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         17.1         15.0         18	INFRA-RED		method	limit/base	current	history1	history2
Sulfation         Abs/.1mm         *ASTM D7415         >30         19.6         19.3         21.8           FLUID DEGRADATION method limit/base current history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         17.1         15.0         18	Soot %	%	*ASTM D7844	>3	0.2	0.4	0.9
FLUID DEGRADATION method limit/base current history1 history2  Oxidation Abs/.1mm *ASTM D7414 >25 17.1 15.0 18	Nitration	Abs/cm	*ASTM D7624	>20	8.3	7.0	9.5
Oxidation Abs/.1mm *ASTM D7414 >25 <b>17.1</b> 15.0 18	Sulfation	Abs/.1mm	*ASTM D7415	>30	19.6	19.3	21.8
	FLUID DEGRA	DATION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	17.1	15.0	18
	Base Number (BN)	mg KOH/g	ASTM D2896	9.6	7.6	8.75	8.59



# **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
<b>Emulsified Water</b>	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	15.5	13.8	14.6	14.6
CBADHS						

GNAF															
Iron (p	pm)						80-		d (ppi	m)					
Severe								Sever	е						
Abnormal							60-	Abno	mal						
Abiloillia							摄40	20110							
					_		20								
		_					0.		_						
Mar23/20 Mav15/20	Aug15/20	Dec9/20	Mar27/21	May25/21	Mar26/22	Sep22/23		Mar23/20	May15/20	Aug15/20	Dec9/20	Mar27/21	May25/21	Mar26/22	00.00
Marí May	Aug	De	Mar	Мау	Mar	Sep		Mar	Мау	Aug	Del	Mar	Мау	Marí	
Alumin	um (ppr	n)							omiur	n (ppi	m)				
Severe							10-	Sever	е						
Abnormal							E 6.	Abno	rmal			-		_	
		i-,	/	-	_		2.	ļ							
	_						0.		_	_					_
Mar23/20 Mav15/20	Aug15/20	Dec9/20	Mar27/21	May25/21	Mar26/22	Sep22/23		Mar23/20	May15/20	Aug15/20	Dec9/20	Mar27/21	May25/21	Mar26/22	000
		ā	Š	Ma	ĕ	Seg						Š	Ma	Na Pa	c
Copper	(ppm)						50		on (p	pm)					
Severe							40	Sever	e						
								Abno	rmal						
Abnormal							E 30.								
							10								
							0.	Ļ	$\pm$	$\Rightarrow$	<u> </u>			-	
Mar23/20 May15/20	Aug15/20	Dec9/20	Mar27/21	May25/21	Mar26/22	Sep22/23		Mar23/20	May15/20	Aug15/20	Dec9/20	Mar27/21	May25/21.	Mar26/22	0000
_			Š	Ma	M	Sel						Ž	Ma	M	0
Viscosit	y @ 100	0°C					10.0	Base .	e Nun	nber					
Abnormal							(B/H0) 8.0.								_
- Base							Base Number (mg KOH/g) 0.0 - 0.8 0.0 - 0.8								
							) ag 4.0-	Section 1							
Abnormal							8 2.0∙								
							E S	1							





Laboratory Sample No. Lab Number

Unique Number : 10676099

: PCA0105059 : 05969548

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 04 Oct 2023 Diagnosed

: 05 Oct 2023 Diagnostician : Wes Davis

Test Package : MOB 1 (Additional Tests: TBN) 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) **B & B HARVESTING** 

2842 LADD RD MODESTO, CA US 95356

Contact: Service Manager drcalvalley@gmail.com T: (209)545-8300

Contact/Location: Service Manager - BBHMOD