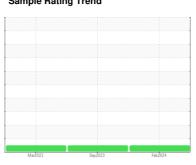


# **OIL ANALYSIS REPORT**

Sample Rating Trend



**NORMAL** 



737098

Component **Diesel Engine** 

PETRO CANADA DURON SHP 10W30 (--- 0

## DIAGNOSIS

### Recommendation

Resample at the next service interval to monitor. Please specify the component make and model with your next sample.

All component wear rates are normal.

### Contamination

There is no indication of any contamination in the oil.

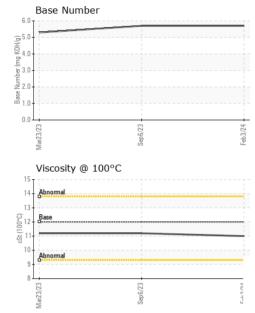
### **Fluid Condition**

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

SAMPLE INFORMATION   method   imit/base   current   history1   PCA0102913   PCA0088402   Sample Number   Client Info   03 Feb 2024   06 Sep 2023   23 Mar 2023   91756   011 Age   mls   Client Info   0	GAL)		Ma	2023	Sep2023 Feb202	14	
Sample Date	SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Machine Age         mls         Client Info         288405         195253         91756           Oil Age         mls         Client Info         0         55747         300000           Oil Changed         Client Info         Not Changd         Not Changd         Changed Changed Changed NoRMAL           Sample Status         method         limit/base         current         history1         history2           Fuel         WC Method         >5         <1.0	Sample Number		Client Info		PCA0114591	PCA0102913	PCA0088402
Oil Age         mls         Client Info         Not Changd         56747         30000           Oil Changed Sample Status         Client Info         Not Changd         Not Changd         Changed Changed           Sample Status         WC Method         >5         <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         <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         <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         <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         <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         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0         <1.0	Sample Date		Client Info		03 Feb 2024	06 Sep 2023	23 Mar 2023
Oil Changed Sample Status         Client Info         Not Changd NORMAL         Not Changd NORMAL         Changed NORMAL         Changed NORMAL	Machine Age	mls	Client Info		288405	195253	91756
NORMAL   NORMAL   NORMAL   CONTAMINATION   method   milibase   current   history1   history2	Oil Age	mls	Client Info		0	56747	30000
Fuel	Oil Changed		Client Info		Not Changd	Not Changd	Changed
Fuel   WC Method   S5   C1.0   C1.0   C1.0   C1.0   Water   WC Method   S0.2   NEG   Neg	Sample Status				NORMAL	NORMAL	NORMAL
Water         WC Method         >0.2         NEG         NEG         NEG           Glycol         WC Method         Imili/base         current         history1         history2           WEAR METALS         method         limil/base         current         history1         history2           Iron         ppm         ASTM D5185m         >100         43         43         97           Chromium         ppm         ASTM D5185m         >20         2         2         5           Nickel         ppm         ASTM D5185m         >4         <1	CONTAMINATION	NC	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>5	<1.0	<1.0	<1.0
WEAR METALS	Water		WC Method	>0.2	NEG	NEG	NEG
Iron	Glycol		WC Method		NEG	NEG	NEG
Chromium         ppm         ASTM D5185m         >20         2         2         5           Nickel         ppm         ASTM D5185m         >4         <1	WEAR METALS	3	method	limit/base	current	history1	history2
Nickel	-	ppm	ASTM D5185m	>100			
Titanium         ppm         ASTM D5185m         <1         1         2           Silver         ppm         ASTM D5185m         >3         0         <1         0           Aluminum         ppm         ASTM D5185m         >20         13         20         61           Lead         ppm         ASTM D5185m         >40         0         <1         <1           Copper         ppm         ASTM D5185m         >330         12         26         125           Tin         ppm         ASTM D5185m         >15         1         <1         4           Vanadium         ppm         ASTM D5185m         >15         1         <1         4           Vanadium         ppm         ASTM D5185m         <1         0         <1         <1           Cadmium         ppm         ASTM D5185m         <1         0         <1         <1         4           Vanadium         ppm         ASTM D5185m         0         0         0         0         <0           Cadmium         ppm         ASTM D5185m         2         3         2         21           Barium         ppm         ASTM D5185m         0         0		ppm			2	2	
Stiver	Nickel	ppm		>4			
Aluminum         ppm         ASTM D5185m         >20         13         20         61           Lead         ppm         ASTM D5185m         >40         0         <1		ppm					
Lead							
Copper         ppm         ASTM D5185m         >330         12         26         125           Tin         ppm         ASTM D5185m         >15         1         <1							
Tin         ppm         ASTM D5185m         >15         1         <1         4           Vanadium         ppm         ASTM D5185m         <1         0         <1           Cadmium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         2         3         2         21           Barium         ppm         ASTM D5185m         0         0         0         0         0           Molybdenum         ppm         ASTM D5185m         50         61         67         46           Manganese         ppm         ASTM D5185m         950         947         973         638           Calcium         ppm         ASTM D5185m         995         1029         1061         781           Zinc         ppm         ASTM D5185m         995         1029         1061         781           Zinc         ppm         ASTM D5185m         2600         2540         2836         2192           CONTAMINANTS         method         limit/base         current         history1							
Vanadium         ppm         ASTM D5185m         <1         0         <1           Cadmium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         2         3         2         21           Barium         ppm         ASTM D5185m         0         0         0         0           Molybdenum         ppm         ASTM D5185m         50         61         67         46           Manganese         ppm         ASTM D5185m         0         <1         <1         3           Magnesium         ppm         ASTM D5185m         950         947         973         638           Calcium         ppm         ASTM D5185m         950         947         973         638           Calcium         ppm         ASTM D5185m         950         1181         1291         1762           Phosphorus         ppm         ASTM D5185m         995         1029         1061         781           Zinc         ppm         ASTM D5185m         2600         2540         2836	• • • • • • • • • • • • • • • • • • • •						
Cadmium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         2         3         2         21           Barium         ppm         ASTM D5185m         0         0         0         0           Molybdenum         ppm         ASTM D5185m         50         61         67         46           Manganese         ppm         ASTM D5185m         0         <1				>15			
ADDITIVES							
Boron		ppm			0		
Barium         ppm         ASTM D5185m         0         0         0         0           Molybdenum         ppm         ASTM D5185m         50         61         67         46           Manganese         ppm         ASTM D5185m         0         <1	ADDITIVES						
Molybdenum         ppm         ASTM D5185m         50         61         67         46           Manganese         ppm         ASTM D5185m         0         <1         3           Magnesium         ppm         ASTM D5185m         950         947         973         638           Calcium         ppm         ASTM D5185m         1050         1181         1291         1762           Phosphorus         ppm         ASTM D5185m         1029         1061         781           Zinc         ppm         ASTM D5185m         1180         1285         1353         1003           Sulfur         ppm         ASTM D5185m         2600         2540         2836         2192           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         12         7         11           Sodium         ppm         ASTM D5185m         >20         23         41         129           INFRA-RED         method         limit/base         current         history1         history2           Soot %         *ASTM D7624         >20         10.4         11.0	Boron						
Manganese         ppm         ASTM D5185m         0         <1         <1         3           Magnesium         ppm         ASTM D5185m         950         947         973         638           Calcium         ppm         ASTM D5185m         1050         1181         1291         1762           Phosphorus         ppm         ASTM D5185m         995         1029         1061         781           Zinc         ppm         ASTM D5185m         1180         1285         1353         1003           Sulfur         ppm         ASTM D5185m         2600         2540         2836         2192           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         12         7         11           Sodium         ppm         ASTM D5185m         >20         23         41         129           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         1.1         1.2         1.4           Nitration         Abs/am         *ASTM D7845		ppm					-
Magnesium         ppm         ASTM D5185m         950         947         973         638           Calcium         ppm         ASTM D5185m         1050         1181         1291         1762           Phosphorus         ppm         ASTM D5185m         995         1029         1061         781           Zinc         ppm         ASTM D5185m         1180         1285         1353         1003           Sulfur         ppm         ASTM D5185m         2600         2540         2836         2192           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         12         7         11           Sodium         ppm         ASTM D5185m         >20         23         41         129           INFRA-RED         method         limit/base         current         history1         history2           Soot %         "ASTM D7844         >3         1.1         1.2         1.4           Nitration         Abs/cm         "ASTM D7624         >20         10.4         11.0         15.2           Sulfation         Abs/.1mm         "ASTM D7415							
Calcium         ppm         ASTM D5185m         1050         1181         1291         1762           Phosphorus         ppm         ASTM D5185m         995         1029         1061         781           Zinc         ppm         ASTM D5185m         1180         1285         1353         1003           Sulfur         ppm         ASTM D5185m         2600         2540         2836         2192           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         12         7         11           Sodium         ppm         ASTM D5185m         >20         23         41         129           INFRA-RED         method         limit/base         current         history1         history2           Soot %         "ASTM D7844         >3         1.1         1.2         1.4           Nitration         Abs/cm         "ASTM D7624         >20         10.4         11.0         15.2           Sulfation         Abs/.1mm         "ASTM D7415         >30         23.2         22.9         27.0           FLUID DEGRADATION </td <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	-						
Phosphorus         ppm         ASTM D5185m         995         1029         1061         781           Zinc         ppm         ASTM D5185m         1180         1285         1353         1003           Sulfur         ppm         ASTM D5185m         2600         2540         2836         2192           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         12         7         11           Sodium         ppm         ASTM D5185m         >20         23         41         129           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         1.1         1.2         1.4           Nitration         Abs/cm         *ASTM D7624         >20         10.4         11.0         15.2           Sulfation         Abs/.1mm         *ASTM D7415         >30         23.2         22.9         27.0           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm	-						
Zinc         ppm         ASTM D5185m         1180         1285         1353         1003           Sulfur         ppm         ASTM D5185m         2600         2540         2836         2192           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         12         7         11           Sodium         ppm         ASTM D5185m         2         1         5           Potassium         ppm         ASTM D5185m         >20         23         41         129           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         1.1         1.2         1.4           Nitration         Abs/cm         *ASTM D7624         >20         10.4         11.0         15.2           Sulfation         Abs/.1mm         *ASTM D7415         >30         23.2         22.9         27.0           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414<							
Sulfur         ppm         ASTM D5185m         2600         2540         2836         2192           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         12         7         11           Sodium         ppm         ASTM D5185m         2         1         5           Potassium         ppm         ASTM D5185m         >20         23         41         129           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         1.1         1.2         1.4           Nitration         Abs/cm         *ASTM D7624         >20         10.4         11.0         15.2           Sulfation         Abs/.1mm         *ASTM D7415         >30         23.2         22.9         27.0           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         21.1         20.7         32.5	·						
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         12         7         11           Sodium         ppm         ASTM D5185m         2         1         5           Potassium         ppm         ASTM D5185m         >20         23         41         129           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         1.1         1.2         1.4           Nitration         Abs/cm         *ASTM D7624         >20         10.4         11.0         15.2           Sulfation         Abs/.1mm         *ASTM D7415         >30         23.2         22.9         27.0           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         21.1         20.7         32.5	-						
Silicon         ppm         ASTM D5185m         >25         12         7         11           Sodium         ppm         ASTM D5185m         2         1         5           Potassium         ppm         ASTM D5185m         >20         23         41         129           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         1.1         1.2         1.4           Nitration         Abs/cm         *ASTM D7624         >20         10.4         11.0         15.2           Sulfation         Abs/.1mm         *ASTM D7415         >30         23.2         22.9         27.0           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         21.1         20.7         32.5		• •					
Sodium         ppm         ASTM D5185m         2         1         5           Potassium         ppm         ASTM D5185m         >20         23         41         129           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         1.1         1.2         1.4           Nitration         Abs/cm         *ASTM D7624         >20         10.4         11.0         15.2           Sulfation         Abs/.1mm         *ASTM D7415         >30         23.2         22.9         27.0           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         21.1         20.7         32.5							•
Potassium         ppm         ASTM D5185m         >20         23         41         129           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         1.1         1.2         1.4           Nitration         Abs/cm         *ASTM D7624         >20         10.4         11.0         15.2           Sulfation         Abs/.1mm         *ASTM D7415         >30         23.2         22.9         27.0           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         21.1         20.7         32.5				>25			
INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         1.1         1.2         1.4           Nitration         Abs/cm         *ASTM D7624         >20         10.4         11.0         15.2           Sulfation         Abs/.1mm         *ASTM D7415         >30         23.2         22.9         27.0           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         21.1         20.7         32.5							
Soot %         %         *ASTM D7844 >3         1.1         1.2         1.4           Nitration         Abs/cm         *ASTM D7624 >20         10.4         11.0         15.2           Sulfation         Abs/.1mm         *ASTM D7415 >30         23.2         22.9         27.0           FLUID DEGRADATION method limit/base current history1         history2           Oxidation         Abs/.1mm         *ASTM D7414 >25         21.1         20.7         32.5		ppm	ASTM D5185m		23	41	129
Nitration         Abs/cm         *ASTM D7624         >20         10.4         11.0         15.2           Sulfation         Abs/.1mm         *ASTM D7415         >30         23.2         22.9         27.0           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         21.1         20.7         32.5	INFRA-RED			limit/base			
Sulfation         Abs/.1mm         *ASTM D7415         >30         23.2         22.9         27.0           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         21.1         20.7         32.5							
FLUID DEGRADATION method limit/base current history1 history2  Oxidation Abs/.1mm *ASTM D7414 >25 <b>21.1</b> 20.7 32.5							
Oxidation         Abs/.1mm         *ASTM D7414         >25         21.1         20.7         32.5					23.2	22.9	27.0
	FLUID DEGRAD	ATION	method	limit/base	current	history1	history2
Base Number (BN)         mg KOH/g         ASTM D2896         5.7         5.3	Oxidation	Abs/.1mm	*ASTM D7414	>25	21.1	20.7	32.5
	Base Number (BN)	mg KOH/g	ASTM D2896		5.7	5.7	5.3



## **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	12.00	11.0	11.2	11.2

V130 @ 100 O	COL	AOTIVI DTTO	12.00	11.0	11.2	11.2
GRAPHS						
Iron (ppm)				Lead (ppm)		
250 Severe				Severe		
				00		
E 150 100 - Abnormal			-	Abnormal		<u> </u>
50-	_			20-		
23 0	23		24	23 0	- 53	
Mar23/23	Sep6/23 -		Feb3/24	Mar23/23	Sep6/23	Feb3/24
Aluminum (ppm)	)			Chromium (	ppm)	
80				Severe		
60 Severe				20		
Abnomal				Abnormal		
20 - 0				10-		
0 +	Sep 6/23 -		Feb3/24	0 1/23 1/2	Sep6/23 +	Feb3/24
Mar23/23	Sep		是	Mar23/23	Sep(	Feb
Copper (ppm)				Silicon (ppm	1)	
Abnormal				80 T Severe		
300				60		
E 200				Abnormal	:	1
100				20		
0 1 523	Sep6/23 -		Feb3/24	0 <del>1</del> 1/3 1/3	Sep6/23 +	Feb3/24 +
Mar23/23	Sep		是	Mar23/23	Sep(	Feb,
Viscosity @ 100°	C			Base Numbe	er	
14 Abnormal				形 5.0		
(J_0001)12 - Base				(b) 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0		
				ag 2.0		
Abnormal				8 1.0		
3/23 +	Sep 6/23 -		Feb3/24	3/23	Sep6/23 +	Feb3/24 +
Mar23/23	Sep		品	Mar23/23	Sep	Feb.





Laboratory Sample No.

Lab Number : 06084212 Unique Number: 10871657

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : PCA0114591

Received : 08 Feb 2024 **Tested** : 09 Feb 2024 Diagnosed

: 09 Feb 2024 - Wes Davis

PHILADELPHIA, PA US 19116 Contact: ROSTY VITER

2196 BENNETT ROAD

rviter@millertransgroup.com T: (215)552-9832

**MILLER TRUCK LEASING #118** 

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)

F: (215)552-9892