

# **OIL ANALYSIS REPORT**

#### Sample Rating Trend



## Machine Id 308987

Component Diesel Engine

PETRO CANADA DURON SHP 10W30 (--- GAL)

### DIAGNOSIS

#### Recommendation

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

#### Wear

All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil.

#### Fluid Condition

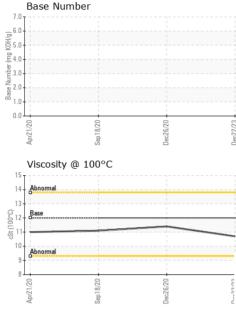
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

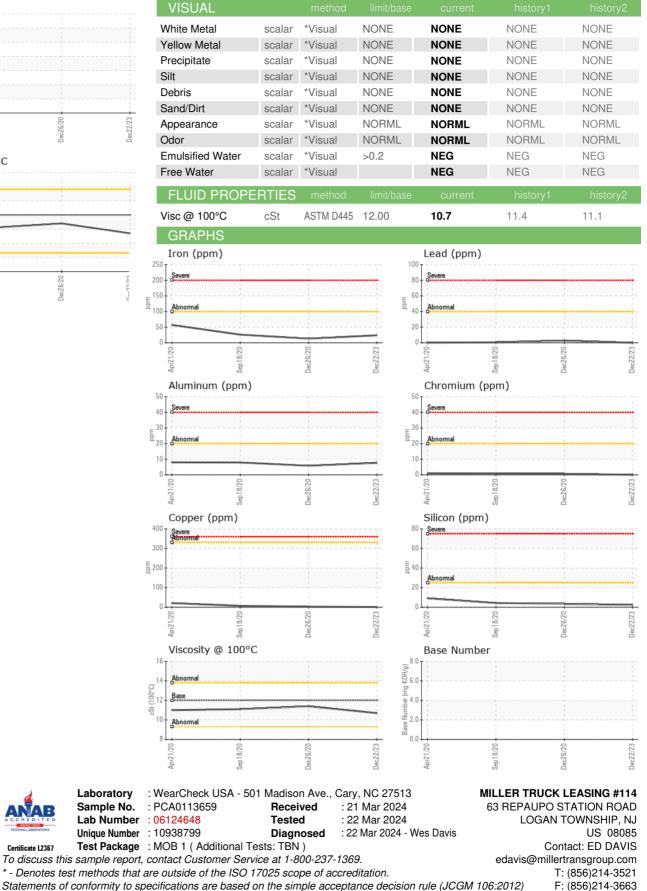
SAMPLE INFORMATION     method     imilibase     current     history1     history2       Sample Number     Client Info     PCA0113659     PCA0037340     PCA0026873       Sample Date     Client Info     83914     0     17897       Dil Age     mils     Client Info     83914     0     17897       Dil Age     mils     Client Info     0     0     10000       Dil Age     mils     Client Info     Changed     Changed     Changed       Sample Status     Imilibase     current     history1     history2       Supol     WC Method     >5     <1.0     <1.0     <1.0       Vater     WC Method     >5     <1.0     <1.0     <1.0       Vater     WC Method     >0       <1.0     <1.0       Vector     WC Method     >0     <1     <1.0     <1.0     <1.0       Vater     WC Method     >0     <1     <1     <1     <1     <1     <1     <1     <1     <1	AL)						
Sample Number     Client Info     PCA0113559     PCA0037340     PCA0026754       Sample Date     Client Info     23 Dec 2023     26 Dec 2020     18 Sep 2020       Machine Age     mis     Client Info     633914     0     17897       Di Age     mis     Client Info     633914     0     17897       Di Age     mis     Client Info     Changed     Changed     Changed       Sample Status     Client Info     Changed     Changed     Changed     Changed       CONTAMINATION     method     Imit/base     current     history1     history2       Fuel     WC Method     >5     <1.0     <1.0     <1.0       Water     WC Method     >5     <1.0     <1.0     <1.0       Water     ppm     ASTM D51655     >20     0     <1     0       Tron     ppm     ASTM D51655     >20     0     <1     0       Tron     ppm     ASTM D51655     >40     0     3     <1       Citekel     ppm	AL)		Apr202			ac2023	
Sample Date     Client Info     22 Dec 2023     26 Dec 2020     18 Sep 2020       Machine Age     mis     Client Info     63914     0     17897       Dil Age     mis     Client Info     0     0     10000       Dil Changed     Client Info     Changed     Changed     Changed     Changed       Sample Status     Imit/base     current     history1     history1     history1       Velat     WC Method     >5     <1.0	SAMPLE INFOR	RMATION	method	limit/base	current	history1	history2
Machine Age     mis     Client Info     83914     0     17897       Di Age     mis     Client Info     0     0     10000       Di Age     mis     Client Info     0     0     10000       Di Age     Mis     Client Info     0     0     0     10000       Di Age     Client Info     Changed     C	Sample Number		Client Info		PCA0113659	PCA0037340	PCA0026879
Dil Age     mls     Client Info     0     0     10000       Dil Changed     Client Info     Changed     Changed <td>Sample Date</td> <td></td> <td>Client Info</td> <td></td> <th>22 Dec 2023</th> <td>26 Dec 2020</td> <td>18 Sep 2020</td>	Sample Date		Client Info		22 Dec 2023	26 Dec 2020	18 Sep 2020
Dil Changed Client Info Changed NORMAL NORMAL NORMAL   Sample Status method limit/base current history1 history2   Evel WC Method >5.5 <1.0	Machine Age	mls	Client Info		83914	0	17897
Sample Status     NORMAL     NORMAL     NORMAL     NORMAL       CONTAMINATION     method     imilibase     current     history1     history2       Fuel     WC Method     >5     <1.0	Dil Age	mls	Client Info		0	0	10000
CONTAMINATION     method     imilibase     current     history1     history2       Fuel     WC Method     >5     <1.0	Oil Changed		Client Info		Changed	Changed	Changed
Fuel     WC Method     >5     <1.0     <1.0     <1.0       Nater     WC Method     >0.2     NEG     NEG     NEG       Slycol     WC Method     NEG     NEG     NEG     NEG       WEAR METALS     method     iimit/base     current     history1     history2       ron     pm     ASTM D5185m     >100     24     13     26       Dromium     ppm     ASTM D5185m     >20     0     <1	Sample Status				NORMAL	NORMAL	NORMAL
Nater     WC Method     >0.2     NEG     NEG     NEG     NEG       Blycol     WC Method     Imit/base     current     history1     history2       ron     ppm     ASTM D5185m     >100     24     13     26       Chromium     ppm     ASTM D5185m     >20     0     <1	CONTAMINA	TION	method	limit/base	current	history1	history2
Blycol     WC Method     NEG     NEG     NEG       WEAR METALS     method     limit/base     current     history1     history2       ron     ppm     ASTM D5185m     >100     24     13     26       Chromium     ppm     ASTM D5185m     >20     0     <1	Fuel		WC Method	>5	<1.0	<1.0	<1.0
WEAR METALS     method     limit/base     current     history1     history2       ron     ppm     ASTM D5185m     >100     24     13     26       Dromium     ppm     ASTM D5185m     >20     0     <1	Water		WC Method	>0.2	NEG	NEG	NEG
ron     ppm     ASTM D5185m     >100     24     13     26       Chromium     ppm     ASTM D5185m     >20     0     <1	Glycol		WC Method		NEG	NEG	NEG
Dromium     ppm     ASTM D5185m     >20     0     <1     <1       Nickel     ppm     ASTM D5185m     >4     0     2     0       Fitanium     ppm     ASTM D5185m     >3     0     0     0       Silver     ppm     ASTM D5185m     >3     0     0     0       Numinum     ppm     ASTM D5185m     >20     8     6     8       ead     ppm     ASTM D5185m     >20     8     7     7       Copper     ppm     ASTM D5185m     >300     1     3     7       Tin     ppm     ASTM D5185m     >15     0     0     3       Antimony     ppm     ASTM D5185m     0     0     0     0       Cadmium     ppm     ASTM D5185m     0     0     0     0     0       Adatadium     ppm     ASTM D5185m     50     73     60     62     23       Barium     ppm     ASTM D5185m     950     1024 </td <td>WEAR META</td> <td>LS</td> <td>method</td> <td>limit/base</td> <th>current</th> <td>history1</td> <td>history2</td>	WEAR META	LS	method	limit/base	current	history1	history2
Nickel     ppm     ASTM D5185m     >4     0     2     0       Fitanium     ppm     ASTM D5185m     3     0     <1	ron	ppm	ASTM D5185m	>100	24	13	26
Titanium     ppm     ASTM D5185m     0     <1     0       Silver     ppm     ASTM D5185m     >3     0     0     0       Silver     ppm     ASTM D5185m     >20     8     6     8       ead     ppm     ASTM D5185m     >40     0     3     <1	Chromium	ppm	ASTM D5185m	>20	0	<1	<1
Silver     ppm     ASTM D5185m     >3     0     0     0       Numinum     ppm     ASTM D5185m     >20     8     6     8       ead     ppm     ASTM D5185m     >40     0     3     <1	Nickel	ppm	ASTM D5185m	>4	0	2	0
Numinum     ppm     ASTM D5185m     >20     8     6     8       Lead     ppm     ASTM D5185m     >40     0     3     <1	Fitanium	ppm	ASTM D5185m		0	<1	0
ead     ppm     ASTM D5185m     >40     0     3     <1       Copper     ppm     ASTM D5185m     >330     1     3     7       Fin     ppm     ASTM D5185m     >15     0     0     3       Antimony     ppm     ASTM D5185m     >15     0     0     0       Aandium     ppm     ASTM D5185m     0     0     0     0       Cadmium     ppm     ASTM D5185m     0     0     0     0       Cadmium     ppm     ASTM D5185m     2     7     5     8       Baron     ppm     ASTM D5185m     0     0     0     0       Adgnesium     ppm     ASTM D5185m     0     0     <11	Silver	ppm	ASTM D5185m	>3	0	0	0
Dopper     ppm     ASTM D5185m     >330     1     3     7       Fin     ppm     ASTM D5185m     >15     0     0     3       Antimony     ppm     ASTM D5185m      3     <1	Aluminum	ppm	ASTM D5185m	>20	8	6	8
Tin     ppm     ASTM D5185m     >15     0     0     3       Antimony     ppm     ASTM D5185m      3     <1	ead	ppm	ASTM D5185m	>40	0	3	<1
Antimony     ppm     ASTM D5185m      3     <1       Vanadium     ppm     ASTM D5185m     0     0     0     0       Cadmium     ppm     ASTM D5185m     0     0     0     0     0       ADDITIVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185m     2     7     5     8       Barium     ppm     ASTM D5185m     0     0     0     0       Adagnese     ppm     ASTM D5185m     50     73     60     62       Magnesium     ppm     ASTM D5185m     0     0     <1	Copper	ppm	ASTM D5185m	>330	1	3	7
Vanadium     ppm     ASTM D5185m     0     0     0       Cadmium     ppm     ASTM D5185m     0     0     0       ADDITIVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185m     2     7     5     8       Barium     ppm     ASTM D5185m     0     0     0     0       Aolybdenum     ppm     ASTM D5185m     0     0     0     0       Aanganese     ppm     ASTM D5185m     0     0     <1	īin	ppm	ASTM D5185m	>15	0	0	3
Cadmium     ppm     ASTM D5185m     0     0     0       ADDITIVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185m     2     7     5     8       Barium     ppm     ASTM D5185m     0     0     0     0     0       Maganese     ppm     ASTM D5185m     0     73     60     62       Magnesium     ppm     ASTM D5185m     0     0     0     <11     1       Magnesium     ppm     ASTM D5185m     950     1024     1038     923       Calcium     ppm     ASTM D5185m     950     1024     1038     923       Calcium     ppm     ASTM D5185m     950     1078     1072     1032       Calcium     ppm     ASTM D5185m     950     1078     1072     1032       Collacture     ppm     ASTM D5185m     2600     3881     2715     2903       CONTAMINANTS     method     limit/base<	Antimony	ppm	ASTM D5185m			3	<1
ADDITIVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185m     2     7     5     8       Barium     ppm     ASTM D5185m     0     0     0     0       Malpbdenum     ppm     ASTM D5185m     50     73     60     62       Magnese     ppm     ASTM D5185m     0     0     <11	/anadium	ppm	ASTM D5185m		0	0	0
Boron     ppm     ASTM D5185m     2     7     5     8       Barium     ppm     ASTM D5185m     0     0     0     0     0       Molybdenum     ppm     ASTM D5185m     50     73     60     62       Manganese     ppm     ASTM D5185m     0     0     -<1	Cadmium	ppm	ASTM D5185m		0	0	0
Barium     ppm     ASTM D5185m     0     0     0     0     0       Molybdenum     ppm     ASTM D5185m     50     73     60     62       Manganese     ppm     ASTM D5185m     0     0     <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum     ppm     ASTM D5185m     50     73     60     62       Manganese     ppm     ASTM D5185m     0     0     -<1	Boron	ppm	ASTM D5185m	2	7	5	8
Manganese     ppm     ASTM D5185m     0     0     <1     1       Magnesium     ppm     ASTM D5185m     950     1024     1038     923       Calcium     ppm     ASTM D5185m     1050     1245     1145     1133       Phosphorus     ppm     ASTM D5185m     995     1078     1072     1032       Zinc     ppm     ASTM D5185m     1180     1361     1223     1271       Sulfur     ppm     ASTM D5185m     2600     3881     2715     2903       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     2     3     4       Sodium     ppm     ASTM D5185m     >20     6     10     10       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     >3     0.6     0.3     0.4       Nitration     Abs/cm     *ASTM D7624	Barium	ppm	ASTM D5185m	0	0	0	0
Magnesium     ppm     ASTM D5185m     950     1024     1038     923       Calcium     ppm     ASTM D5185m     1050     1245     1145     1133       Phosphorus     ppm     ASTM D5185m     995     1078     1072     1032       Zinc     ppm     ASTM D5185m     1180     1361     1223     1271       Sulfur     ppm     ASTM D5185m     2600     3881     2715     2903       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     2     3     4       Sodium     ppm     ASTM D5185m     >20     6     10     10       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     >3     0.6     0.3     0.4       Mitration     Abs/cm     *ASTM D7624     >20     10.6     7.6     8.9       Sulfation     Abs/.1mm     *ASTM	Molybdenum	ppm	ASTM D5185m	50	73	60	62
Calcium     ppm     ASTM D5185m     1050     1245     1145     1133       Phosphorus     ppm     ASTM D5185m     995     1078     1072     1032       Zinc     ppm     ASTM D5185m     1180     1361     1223     1271       Sulfur     ppm     ASTM D5185m     2600     3881     2715     2903       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     2     3     4       Sodium     ppm     ASTM D5185m     >20     6     10     10       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     >3     0.6     0.3     0.4       Nitration     Abs/cm     *ASTM D7624     >20     10.6     7.6     8.9       Sulfation     Abs/.1mm     *ASTM D7415     >30     20.8     19.3     20.3       FLUID DEGRADATION     method	Manganese	ppm	ASTM D5185m	0	0	<1	1
Phosphorus     ppm     ASTM D5185m     995     1078     1072     1032       Zinc     ppm     ASTM D5185m     1180     1361     1223     1271       Sulfur     ppm     ASTM D5185m     2600     3881     2715     2903       CONTAMINANTS     method     limit/base     current     history1     history2       Solicon     ppm     ASTM D5185m     >25     2     3     4       Sodium     ppm     ASTM D5185m     >25     2     3     4       Sodium     ppm     ASTM D5185m     >20     6     10     10       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     >3     0.6     0.3     0.4       Nitration     Abs/cm     *ASTM D7624     >20     10.6     7.6     8.9       Sulfation     Abs/.1mm     *ASTM D7415     >30     20.8     19.3     20.3       FLUID DEGRADATION     method     limit	Magnesium	ppm	ASTM D5185m	950	1024	1038	923
Zinc     ppm     ASTM D5185m     1180     1361     1223     1271       Soulfur     ppm     ASTM D5185m     2600     3881     2715     2903       CONTAMINANTS     method     limit/base     current     history1     history2       Solicon     ppm     ASTM D5185m     >25     2     3     4       Sodium     ppm     ASTM D5185m     >25     2     3     4       Sodium     ppm     ASTM D5185m     >20     6     10     10       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     >3     0.6     0.3     0.4       Nitration     Abs/cm     *ASTM D7624     >20     10.6     7.6     8.9       Soulfation     Abs/.1mm     *ASTM D7414     >30     20.8     19.3     20.3       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D741	Calcium	ppm	ASTM D5185m	1050	1245	1145	1133
SulfurppmASTM D5185m2600388127152903CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>25234SodiumppmASTM D5185m>20222PotassiumppmASTM D5185m>2061010INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7844>30.60.30.4NitrationAbs/cm*ASTM D7624>2010.67.68.9SoulfationAbs/.1mm*ASTM D7415>3020.819.320.3FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2DxidationAbs/.1mm*ASTM D7414>2518.515.216.7	Phosphorus	ppm	ASTM D5185m	995	1078	1072	1032
CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     2     3     4       Sodium     ppm     ASTM D5185m     >25     2     3     4       Potassium     ppm     ASTM D5185m     >20     6     10     10       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     >3     0.6     0.3     0.4       Nitration     Abs/cm     *ASTM D7624     >20     10.6     7.6     8.9       Soulfation     Abs/.1mm     *ASTM D7415     >30     20.8     19.3     20.3       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     18.5     15.2     16.7	Zinc	ppm	ASTM D5185m	1180	1361	1223	1271
Silicon     ppm     ASTM D5185m     >25     2     3     4       Sodium     ppm     ASTM D5185m     >20     2     2     2     2       Potassium     ppm     ASTM D5185m     >20     6     10     10       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     >3     0.6     0.3     0.4       Nitration     Abs/cm     *ASTM D7624     >20     10.6     7.6     8.9       Soulfation     Abs/cm     *ASTM D7615     >30     20.8     19.3     20.3       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     18.5     15.2     16.7	Sulfur	ppm	ASTM D5185m	2600	3881	2715	2903
Sodium     ppm     ASTM D5185m     2     2     2       Potassium     ppm     ASTM D5185m     >20     6     10     10       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     >3     0.6     0.3     0.4       Mitration     Abs/cm     *ASTM D7624     >20     10.6     7.6     8.9       Sulfation     Abs/.1mm     *ASTM D7415     >30     20.8     19.3     20.3       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     18.5     15.2     16.7	CONTAMINA	NTS	method	limit/base	current	history1	history2
Potassium     ppm     ASTM D5185m     >20     6     10     10       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     >3     0.6     0.3     0.4       Nitration     Abs/cm     *ASTM D7624     >20     10.6     7.6     8.9       Sulfation     Abs/.1mm     *ASTM D7415     >30     20.8     19.3     20.3       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     18.5     15.2     16.7	Silicon	ppm	ASTM D5185m	>25	2	3	4
INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     >3     0.6     0.3     0.4       Nitration     Abs/cm     *ASTM D7624     >20     10.6     7.6     8.9       Soulfation     Abs/.1mm     *ASTM D7415     >30     20.8     19.3     20.3       FLUID DEGRADATION     method     limit/base     current     history1     history2       Dxidation     Abs/.1mm     *ASTM D7414     >25     18.5     15.2     16.7	Sodium	ppm	ASTM D5185m		2	2	2
Soot %     %     *ASTM D7844     >3     0.6     0.3     0.4       Nitration     Abs/cm     *ASTM D7624     >20     10.6     7.6     8.9       Sulfation     Abs/.1mm     *ASTM D7415     >30     20.8     19.3     20.3       FLUID DEGRADATION     method     limit/base     current     history1     history2       Dxidation     Abs/.1mm     *ASTM D7414     >25     18.5     15.2     16.7	Potassium	ppm	ASTM D5185m	>20	6	10	10
Nitration     Abs/cm     *ASTM D7624     >20     10.6     7.6     8.9       Sulfation     Abs/.1mm     *ASTM D7615     >30     20.8     19.3     20.3       FLUID DEGRADATION     method     limit/base     current     history1     history2       Dxidation     Abs/.1mm     *ASTM D7414     >25     18.5     15.2     16.7	INFRA-RED		method	limit/base	current	history1	history2
Sulfation     Abs/.1mm     *ASTM D7415     >30     20.8     19.3     20.3       FLUID DEGRADATION     method     limit/base     current     history1     history2       Dxidation     Abs/.1mm     *ASTM D7414     >25     18.5     15.2     16.7	Soot %	%	*ASTM D7844	>3	0.6	0.3	0.4
FLUID DEGRADATION     method     limit/base     current     history1     history2       Dxidation     Abs/.1mm     *ASTM D7414     >25     18.5     15.2     16.7	Nitration	Abs/cm	*ASTM D7624	>20	10.6	7.6	8.9
Dxidation     Abs/.1mm     *ASTM D7414     >25     18.5     15.2     16.7		Abs/.1mm	*ASTM D7415	>30			20.3
	FLUID DEGRA	DATION	method	limit/base	current	history1	history2
Base Number (BN)     mg KOH/g     ASTM D2896     7.0	Dxidation	Abs/.1mm	*ASTM D7414	>25	18.5	15.2	16.7
	Base Number (BN)	mg KOH/g	ASTM D2896		7.0		

Contact/Location: ED DAVIS - MILLOG



# **OIL ANALYSIS REPORT**





Certificate L2367