

# **OIL ANALYSIS REPORT**

### Sample Rating Trend





# Component

Diesel Engine

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

## 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.

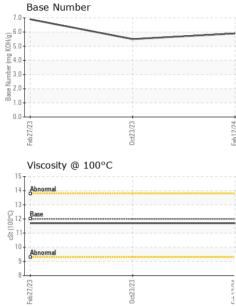
### Fluid Condition

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

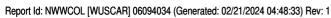
•		Feb	2020	Oct2023 Feb202		
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0116082	PCA0107507	PCA0090359
Sample Date		Client Info		12 Feb 2024	23 Oct 2023	27 Feb 2023
Machine Age	mls	Client Info		178948	218176	218176
Oil Age	mls	Client Info		25000	218176	25000
Oil Changed		Client Info		N/A	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	16	18	19
Chromium	ppm	ASTM D5185m	>20	<1	0	<1
Nickel	ppm	ASTM D5185m	>4	0	0	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>3	0	<1	<1
Aluminum	ppm	ASTM D5185m	>20	1	2	2
Lead	ppm	ASTM D5185m	>40	0	0	<1
Copper	ppm	ASTM D5185m	>330	2	1	3
Tin	ppm	ASTM D5185m	>15	<1	0	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron		method ASTM D5185m	limit/base	current	history1 0	history2 5
	ppm ppm					
Boron	ppm	ASTM D5185m	2	1	0	5
Boron Barium	ppm ppm	ASTM D5185m ASTM D5185m	2 0	1 3	0 0	5 0
Boron Barium Molybdenum	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50	1 3 60	0 0 65	5 0 60
Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0	1 3 60 0	0 0 65 <1	5 0 60 1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950	1 3 60 0 869	0 0 65 <1 934	5 0 60 1 899
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050	1 3 60 0 869 1065	0 0 65 <1 934 1121	5 0 60 1 899 1173
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995	1 3 60 0 869 1065 958	0 0 65 <1 934 1121 1024	5 0 60 1 899 1173 940
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180	1 3 60 0 869 1065 958 1152	0 0 65 <1 934 1121 1024 1249	5 0 60 1 899 1173 940 1196
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600	1 3 60 0 869 1065 958 1152 2692	0 0 65 <1 934 1121 1024 1249 2459	5 0 60 1 899 1173 940 1196 2817
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600	1 3 60 0 869 1065 958 1152 2692 current	0 0 65 <1 934 1121 1024 1249 2459 history1	5 0 60 1 899 1173 940 1196 2817 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b>	2 0 50 950 1050 995 1180 2600 Limit/base >25	1 3 60 0 869 1065 958 1152 2692 current 7	0 0 65 <1 934 1121 1024 1249 2459 history1 9	5 0 60 1 899 1173 940 1196 2817 kistory2 7
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600 Limit/base >25	1 3 60 0 869 1065 958 1152 2692 current 7 0	0 0 65 <1 934 1121 1024 1249 2459 history1 9 0	5 0 60 1 899 1173 940 1196 2817 <b>history2</b> 7 1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600 <b>limit/base</b> >25 >20	1 3 60 0 869 1065 958 1152 2692 current 7 0 4	0 0 65 <1 934 1121 1024 1249 2459 history1 9 0 2	5 0 60 1 899 1173 940 1196 2817 <b>history2</b> 7 1 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b>	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 <b>Imit/base</b> >25 >20 <b>Imit/base</b> >3	1 3 60 0 869 1065 958 1152 2692 current 7 0 4 current	0 0 65 <1 934 1121 1024 1249 2459 history1 9 0 2 2 history1	5 0 60 1 899 1173 940 1196 2817 <b>history2</b> 7 1 4 <b>history2</b>
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b> ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 <b>Imit/base</b> >25 >20 <b>Imit/base</b> >3	1 3 60 0 869 1065 958 1152 2692 current 7 0 4 current 0.7	0 0 65 <1 934 1121 1024 1249 2459 history1 9 0 2 2 history1 0.7	5 0 60 1 899 1173 940 1196 2817 <b>history2</b> 7 1 4 <b>history2</b> 0.6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 <i>limit/base</i> >25 >20 <i>limit/base</i> >3 >20	1 3 60 0 869 1065 958 1152 2692 current 7 0 4 current 0.7 9.5	0 0 65 <1 934 1121 1024 1249 2459 history1 9 0 2 2 history1 0.7 9.9	5 0 60 1 899 1173 940 1196 2817 history2 7 1 4 4 history2 0.6 9.6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 <b>imit/base</b> >25 >20 <b>imit/base</b> >3 >20 >30	1 3 60 0 869 1065 958 1152 2692 <u>current</u> 7 0 4 <u>current</u> 0.7 9.5 21.9	0 0 65 <1 934 1121 1024 1249 2459 history1 9 0 2 2 history1 0.7 9.9 22.2	5 0 60 1 899 1173 940 1196 2817 <b>history2</b> 7 1 4 <b>history2</b> 0.6 9.6 21.2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	2 0 50 0 950 1050 995 1180 2600 <b>imit/base</b> >25 >20 <b>imit/base</b> >3 >20 >30	1 3 60 0 869 1065 958 1152 2692 current 7 0 4 current 0.7 9.5 21.9 current	0 0 65 <1 934 1121 1024 1249 2459 history1 9 0 2 2 history1 0.7 9.9 22.2 history1	5 0 60 1 899 1173 940 1196 2817 history2 7 1 4 4 history2 0.6 9.6 21.2 history2



# **OIL ANALYSIS REPORT**



с.1924 -	White Metal Yellow Metal Precipitate Silt Debris Sand/Dirt Appearance Odor Emulsified Water Free Water FLUID PROPE Visc @ 100°C GRAPHS Ferrous Alloys 20 15	scalar scalar scalar scalar scalar scalar scalar scalar scalar scalar scalar	*Visual *Visual *Visual *Visual *Visual *Visual *Visual *Visual *Visual <b>method</b> ASTM D445	NONE NONE NONE NONE NORML NORML >0.2 Iimit/base 12.00	NONE NONE NONE NONE NORML NORML NEG NEG Current 11.7	NONE NONE NONE NONE NORML NORML NEG NEG history1 11.7	NONE NONE NONE NONE NOR NOR NOR NOR NEG NEG history2
C-T+1204	Precipitate Silt Debris Sand/Dirt Appearance Odor Emulsified Water Free Water Free Water FLUID PROPE Visc @ 100°C GRAPHS Ferrous Alloys	scalar scalar scalar scalar scalar scalar scalar scalar	*Visual *Visual *Visual *Visual *Visual *Visual *Visual *Visual <b>method</b>	NONE NONE NONE NORML NORML >0.2 limit/base	NONE NONE NONE NORML NORML NEG NEG	NONE NONE NONE NORML NORML NEG NEG history1	NONE NONE NONE NORML NORML NEG NEG history2
C-T+1204	Silt Debris Sand/Dirt Appearance Odor Emulsified Water Free Water FLUID PROPE Visc @ 100°C GRAPHS Ferrous Alloys	scalar scalar scalar scalar scalar scalar scalar	*Visual *Visual *Visual *Visual *Visual *Visual <b>*</b> Visual <b>method</b>	NONE NONE NORML NORML >0.2 limit/base	NONE NONE NORML NORML NEG NEG	NONE NONE NORML NORML NEG NEG history1	NONE NONE NORML NORML NEG NEG history2
C-T+1204	Debris Sand/Dirt Appearance Odor Emulsified Water Free Water FLUID PROPE Visc @ 100°C GRAPHS Ferrous Alloys	scalar scalar scalar scalar scalar scalar RTIES	*Visual *Visual *Visual *Visual *Visual *Visual method	NONE NORML NORML >0.2 limit/base	NONE NORML NORML NEG NEG	NONE NORML NORML NEG NEG history1	NONE NORML NORML NEG NEG history2
C-T+1204	Sand/Dirt Appearance Odor Emulsified Water Free Water FLUID PROPE Visc @ 100°C GRAPHS Ferrous Alloys	scalar scalar scalar scalar scalar RTIES	*Visual *Visual *Visual *Visual *Visual method	NONE NORML NORML >0.2 limit/base	NONE NORML NORML NEG NEG current	NONE NORML NORML NEG NEG history1	NONE NORML NORML NEG NEG history2
C-T+1204	Appearance Odor Emulsified Water Free Water FLUID PROPE Visc @ 100°C GRAPHS Ferrous Alloys	scalar scalar scalar scalar RTIES	*Visual *Visual *Visual *Visual method	NORML NORML >0.2 limit/base	NORML NORML NEG NEG current	NORML NORML NEG NEG history1	NORML NORML NEG NEG history2
C-T+1204	Odor Emulsified Water Free Water FLUID PROPE Visc @ 100°C GRAPHS Ferrous Alloys	scalar scalar scalar RTIES	*Visual *Visual *Visual method	NORML >0.2 limit/base	NORML NEG NEG current	NORML NEG NEG history1	NORML NEG NEG history2
_	Emulsified Water Free Water FLUID PROPE Visc @ 100°C GRAPHS Ferrous Alloys	scalar scalar RTIES	*Visual *Visual method	>0.2 limit/base	NEG NEG current	NEG NEG history1	NEG NEG history2
_	Free Water FLUID PROPE Visc @ 100°C GRAPHS Ferrous Alloys	scalar RTIES	*Visual method	limit/base	NEG current	NEG history1	history2
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	que Number st Package mple report, ethods that a	boratory : WearCheck USA - 50' mple No. : PCA0116082 b Number : 10836887 st Package : FLEET mple report, contact Customer Servitethods that are outside of the ISO 1	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals Non-ferrous Metals Viscosity @ 100°C Viscosity @	Non-ferrous Metals	Non-ferrous Metals Non-ferrous Metals Viscosity @ 100°C Viscosity @ 100°C Viscosity @ 100°C Viscosity @ 100°C Viscosity @ 100°C Viscosity @ 100°C Viscosity @ 100°C New White & Co-CoLU mple No. : PCA0116082 Received : 20 Feb 2024 100 INDEPEN b Number : 10886887 Diagnosed : 21 Feb 2024 Ves Davis st Package : FLEET Contact: GEOR mple report, contact Customer Service at 1-800-237-1369.



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