

## **OIL ANALYSIS REPORT**

Sample Rating Trend





Machine Id 822006-191

Component Diesel Engine

PETRO CANADA DURON SHP E6 10W40 (--- LTR)

### Recommendation

Resample at the next service interval to monitor.

Fluid

#### Wear

All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil.

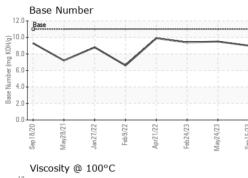
### Fluid Condition

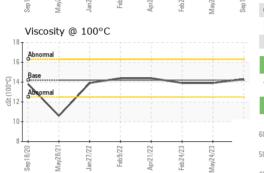
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0089556	GFL0067884	GFL0049720
Sample Date		Client Info		15 Sep 2023	24 May 2023	24 Feb 2023
Machine Age	hrs	Client Info		10805	10805	5914
Oil Age	hrs	Client Info		10805	10805	10805
Oil Changed		Client Info		N/A	N/A	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>80	14	20	14
Chromium	ppm	ASTM D5185m		<1	1	<1
Nickel	ppm	ASTM D5185m	>2	0	<1	<1
Titanium	ppm	ASTM D5185m		0	<1	<1
Silver	ppm	ASTM D5185m	>3	0	0	<1
Aluminum	ppm	ASTM D5185m		2	3	4
Lead	ppm	ASTM D5185m	>30	0	<1	<1
Copper	ppm	ASTM D5185m		۰ <1	<1	<1
Tin	ppm	ASTM D5185m	>5	0	0	<1
Vanadium	ppm	ASTM D5185m	20	0	0	<1
Cadmium		ASTM D5185m		0	0	0
	ppm	AGTINI DJ TOJIII		0	-	0
						history?
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	1	current 8	5	5
	ppm ppm			8 <1	5 0	5 0
Boron		ASTM D5185m ASTM D5185m ASTM D5185m	1 0 49	8 <1 62	5 0 60	5 0 63
Boron Barium Molybdenum Manganese	ppm	ASTM D5185m ASTM D5185m	1 0 49 0	8 <1 62 <1	5 0 60 <1	5 0 63 <1
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1 0 49 0 930	8 <1 62	5 0 60 <1 972	5 0 63
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1 0 49 0	8 <1 62 <1 993 1111	5 0 60 <1 972 1053	5 0 63 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1 0 49 0 930	8 <1 62 <1 993	5 0 60 <1 972	5 0 63 <1 914
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1 0 49 0 930 1350	8 <1 62 <1 993 1111	5 0 60 <1 972 1053	5 0 63 <1 914 1110
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1 0 49 0 930 1350 810	8 <1 62 <1 993 1111 1102	5 0 60 <1 972 1053 1057	5 0 63 <1 914 1110 1044
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1 0 49 0 930 1350 810 930	8 <1 62 <1 993 1111 1102 1303	5 0 60 <1 972 1053 1057 1294	5 0 63 <1 914 1110 1044 1247
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1 0 49 0 930 1350 810 930 2500	8 <1 62 <1 993 1111 1102 1303 3823	5 0 60 <1 972 1053 1057 1294 3787	5 0 63 <1 914 1110 1044 1247 3583
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1 0 49 0 930 1350 810 930 2500	8 <1 62 <1 993 1111 1102 1303 3823 current	5 0 60 <1 972 1053 1057 1294 3787 history1	5 0 63 <1 914 1110 1044 1247 3583 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1 0 49 0 930 1350 810 930 2500 2500 kimit/base >20	8 <1 62 <1 993 1111 1102 1303 3823 current 3	5 0 60 <1 972 1053 1057 1294 3787 history1 5	5 0 63 <1 914 1110 1044 1247 3583 history2 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1 0 49 0 930 1350 810 930 2500 2500 kimit/base >20	8 <1 62 <1 993 1111 1102 1303 3823 current 3 5	5 0 60 <1 972 1053 1057 1294 3787 history1 5 4	5 0 63 <1 914 1110 1044 1247 3583 history2 4 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	1 0 49 0 330 1350 810 930 2500 2500 2500 2500	8 <1 62 <1 993 1111 1102 1303 3823 current 3 5 3	5 0 60 <1 972 1053 1057 1294 3787 history1 5 4 3	5 0 63 <1 914 1110 1044 1247 3583 history2 4 2 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	1 0 49 0 330 1350 810 930 2500 2500 <b>Imit/base</b> >20 <b>Imit/base</b>	8 <1 62 <1 993 1111 1102 1303 3823 current 3 5 3 3 2 5 3	5 0 60 <1 972 1053 1057 1294 3787 history1 5 4 3 3 history1	5 0 63 <1 914 1110 1044 1247 3583 history2 4 2 3 3 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	1 0 49 0 330 1350 810 930 2500 <b>limit/base</b> >20 20 <b>limit/base</b> >20	8 <1 62 <1 993 1111 1102 1303 3823 current 3 5 3 5 3 2 5 3 2 0.4	5 0 60 <1 972 1053 1057 1294 3787 history1 5 4 3 3 <u>history1</u> 0.6	5 0 63 <1 914 1110 1044 1247 3583 history2 4 2 3 3 history2 0.4
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	1 0 49 0 330 1350 810 930 2500 <b>imit/base</b> >20 <b>imit/base</b> >20	8 <1 62 <1 993 1111 1102 1303 3823 current 3 5 3 current 0.4 6.1	5 0 60 <1 972 1053 1057 1294 3787 history1 5 4 3 3 <u>history1</u> 0.6 8.6	5 0 63 <1 914 1110 1044 1247 3583 history2 4 2 3 history2 0.4 6.8
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	1 0 49 0 330 1350 810 930 2500 <b>imit/base</b> >20 <b>imit/base</b> >3 >20 >3	8 <1 62 <1 993 1111 1102 1303 3823 Current 3 5 3 Current 0.4 6.1 17.9 Current	5 0 60 <1 972 1053 1057 1294 3787 history1 5 4 3 3 history1 0.6 8.6 19.3	5 0 63 <1 914 1110 1044 1247 3583 history2 4 2 3 8 history2 0.4 6.8 18.4
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 D7844 *ASTM D7844	1 0 49 0 330 1350 810 930 2500 2500 2500 220 220 220 20 1imit/base 20 20 3 20 20 3 3	8 <1 62 <1 993 1111 1102 1303 3823 <u>current</u> 3 5 3 <u>current</u> 0.4 6.1 17.9	5 0 60 <1 972 1053 1057 1294 3787 history1 5 4 3 3 history1 0.6 8.6 19.3 history1	5 0 63 <1 914 1110 1044 1247 3583 history2 4 2 3 history2 0.4 6.8 18.4 history2



# **OIL ANALYSIS REPORT**





				method	limit/base	current	history1	history2
		White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
/		Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Feb3/22	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	
Aprá	Feb 2	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
		Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
		Free Water	scalar	*Visual		NEG	NEG	NEG
-		FLUID PROPI	ERTIES	method	limit/base	current	history1	history2
		Visc @ 100°C	cSt	ASTM D445	14.2	14.3	13.9	13.9
		GRAPHS						
		Ferrous Alloys						
Feb9/22 Apr21/22	Feb24/23 May24/23	50	$\checkmark$		/			
		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ala Apr21/22	Feb24/23 May24/23	Sep15/23			
		- conner i						
		8 4 copper						
		8 - lead 6 - lead 4 - 2 - 0	Feb9/22	ab24/23	ep 15/23			
		8- Eg 4- 2-	Apr21/22	Feb24/23	Sep 15/23			
		end tin tin tin tin tin tin tin tin tin tin	4	Feb24/23 May24/23	225 255 485 12.0	Base Number		
		B H H H H H H H H H H H H H	4	Feb24/23	12.0	Base Number		
		end tin tin tin tin tin tin tin tin	4	Feb24/23 May24/23	12.0			
		e e d d d d d d d d d d d d d	4	Febi24/23	12.0			
		e d d d d d d d d d d d d d	4	Feb24/23	12.0			
		e d d d d d d d d d d d d d	4	Feb24/23	12.0			
		B B C C C C C C C C C C C C C	4	Feb24/23	12.0 10.0 (0)(HO 8.0 ) 10,0 (0)(HO 8.0)(HO			
		8 6 6 6 10 10 10 10 10 10 10 10 10 10	4	Feb24/23	12.0			
		e e d d d d d d d d d d d d d	c		12.0 (0.0 (0.0) (0	Base	2	
		e e d d d d d d d d d d d d d	c		12.0 (0.0 (0.0) (0	Base	Feb3/22	eb24/23
ertificate L2367	Laboratory Sample No. Lab Number Unique Numbe Test Package	Uiscosity @ 100° Uiscosity @	Feb3/22 C Apr21/22	EZUHZ0H2 Son Ave., Ca d : 18 : ed : 20 :	12.0 (0,4)((0,4))((0,4))((0,4)((0,4))((0,4))((0,4))((0,4))((0,4))((0,4))((0,4)((0,4))((0,4))((0,	Sep 16/20 May28/21	vironmental - 6 12230 [	545 - Midlothia Deergrove Roa Midlothian, V US 2311 Corbin Umphl

VISUAL method limit/base current historv1 historv2

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

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