

## **OIL ANALYSIS REPORT**

Sample Rating Trend





#### Component Diesel Engine

Fluid 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.

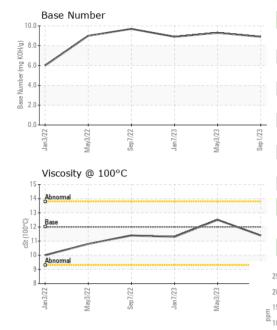
### Fluid Condition

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

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0104293	PCA0095895	PCA0088147
Sample Date		Client Info		01 Sep 2023	03 May 2023	07 Jan 2023
Machine Age	mls	Client Info		0	0	23754
Oil Age	mls	Client Info		0	0	0
Oil Changed		Client Info		N/A	N/A	Changed
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 METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	18	13	21
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	<1	0	<1
Titanium	ppm	ASTM D5185m		0	<1	0
Silver	ppm	ASTM D5185m	>3	0	0	<1
Aluminum	ppm	ASTM D5185m	>20	3	4	3
Lead	ppm	ASTM D5185m	>40	1	<1	2
Copper	ppm	ASTM D5185m	>330	5	4	11
Tin	ppm	ASTM D5185m	>15	<1	<1	1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		ام م مالد ممر			المستحلحا وا	history 0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm		2	17	11	15
	ppm ppm					
Boron		ASTM D5185m	2	17	11	15
Boron Barium	ppm	ASTM D5185m ASTM D5185m	2 0 50	17 0	11 0	15 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50	17 0 80	11 0 61	15 0 71
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0	17 0 80 <1	11 0 61 <1	15 0 71 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950	17 0 80 <1 1123	11 0 61 <1 924	15 0 71 <1 962
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050	17 0 80 <1 1123 1365	11 0 61 <1 924 1125	15 0 71 <1 962 1297
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	2 0 50 0 950 1050 995	17 0 80 <1 1123 1365 1276	11 0 61 <1 924 1125 986	15 0 71 <1 962 1297 1063
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	2 0 50 950 1050 995 1180	17 0 80 <1 1123 1365 1276 1571	11 0 61 <1 924 1125 986 1230	15 0 71 <1 962 1297 1063 1335
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	2 0 50 950 1050 995 1180 2600	17 0 80 <1 1123 1365 1276 1571 4140	11 0 61 <1 924 1125 986 1230 3378	15 0 71 <1 962 1297 1063 1335 3579
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 ASTM D5185m	2 0 50 950 1050 995 1180 2600	17 0 80 <1 1123 1365 1276 1571 4140 current	11 0 61 <1 924 1125 986 1230 3378 history1	15 0 71 <1 962 1297 1063 1335 3579 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 <b>method</b>	2 0 50 950 1050 995 1180 2600	17 0 80 <1 1123 1365 1276 1571 4140 current 7	11 0 61 <1 924 1125 986 1230 3378 history1 4	15 0 71 <1 962 1297 1063 1335 3579 history2 6
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 ASTM D5185m	2 0 50 950 1050 995 1180 2600 limit/base >25	17 0 80 <1 1123 1365 1276 1571 4140 current 7 3	11 0 61 <1 924 1125 986 1230 3378 history1 4 1	15 0 71 <1 962 1297 1063 1335 3579 history2 6 1
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	2 0 50 950 1050 995 1180 2600 <i>limit/base</i> >25	17 0 80 <1 1123 1365 1276 1571 4140 current 7 3 1	11 0 61 <1 924 1125 986 1230 3378 history1 4 1 <1	15 0 71 <1 962 1297 1063 1335 3579 history2 6 1 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 ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 <b>limit/base</b> >25 -20 <b>limit/base</b>	17 0 80 <1 1123 1365 1276 1571 4140 current 7 3 1 1 current	111 0 61 <1 924 1125 986 1230 3378 history1 4 1 <1 <1 history1	15 0 71 <1 962 1297 1063 1335 3579 history2 6 1 3 3
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	2 0 50 0 950 1050 995 1180 2600 limit/base >25 >20 limit/base >20	17 0 80 <1 1123 1365 1276 1571 4140 <i>current</i> 7 3 1 <i>current</i> 0.4	111 0 61 <1 924 1125 986 1230 3378 history1 4 1 <1 <1 history1 0.4	15 0 71 <1 962 1297 1063 1335 3579 history2 6 1 3 <i>history2</i> 0.5
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 50 950 1050 995 1180 2600 <i>limit/base</i> >25 >20 <i>limit/base</i> >3 >20	17 0 80 <1 1123 1365 1276 1571 4140 <i>current</i> 7 3 1 <i>current</i> 0.4 7.4	111 0 61 <1 924 1125 986 1230 3378 history1 4 1 <1 history1 0.4 8.0	15 0 71 <1 962 1297 1063 1335 3579 history2 6 1 3 <i>history2</i> 0.5 8.6
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 <b>imit/base</b> >3 >20	17 0 80 <1 1123 1365 1276 1571 4140 <i>current</i> 7 3 1 <i>current</i> 0.4 7.4 18.4	111 0 61 <1 924 1125 986 1230 3378 history1 4 1 <1 history1 0.4 8.0 19.0	15 0 71 <1 962 1297 1063 1335 3579 history2 6 1 3 3 history2 0.5 8.6 19.1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	2 0 0 50 0 950 1050 995 1180 2600 <b>imit/base</b> >25 >20 >20 >30 >30 <b>imit/base</b>	17 0 80 <1 1123 1365 1276 1571 4140 <i>current</i> 7 3 1 <i>current</i> 0.4 7.4 18.4	111 0 61 <1 924 1125 986 1230 3378 history1 4 1 <1 history1 0.4 8.0 19.0 history1	15 0 71 <1 962 1297 1063 1335 3579 history2 6 1 3 <i>history2</i> 0.5 8.6 19.1 <i>history2</i>



# **OIL ANALYSIS REPORT**



		VISUAL		method	limit/base	current	histo	ry1	histo	ory2	
		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	-		
Jan7/23	May3/23 San 1/23	Appearance	scalar	*Visual	NORML	NORML	NORM	1L	NORM	ΛL	
Jar Jar	Mar	Ödor	scalar	*Visual	NORML	NORML	NORM	1L	NORM	ΛL	
		Emulsified Water	scalar	*Visual	>0.2	NEG	NEG		NEG		
		Free Water	scalar	*Visual		NEG	NEG		NEG		
		FLUID PROP	ERTIES	method	limit/base	current	histo	ry1	histo	ory2	
	$\wedge$	Visc @ 100°C	cSt	ASTM D445	12.00	11.4	12.5		11.3		
		GRAPHS									
		Iron (ppm)				Lead (ppm)					
		250 Severe			10	1					
Jan7/23	May3/23	200			8	0 - Severe					
n n	Ma	a 150 100 Abnormal			e d						
					4						
		50			2						
		12 12 10	122	/23 -	/23	22	/22 -	/23	/23.	23	
		Jan 3/22 May 3/22	Sep7/22 Jan7/23	May3/23	Sep1/23	Jan3/22 May3/22	Sep7/22	Jan7/23	May3/23	Sen1/73	
		Aluminum (ppm	)			Chromium (p	pm)				
		50 40		1 1	5	Severe		,	I I		
		a 30 20 Abnormal			ud 2	Abnormal					
		10				1.1					
		0									
		Jan3/22 May3/22	Sep 7/22 Jan 7/23	May3/23	Sep 1/23	Jan 3/22 May 3/22	Sep 7/22	Jan 7/23	May3/23	Sen1/23	
		∽ ≥ Copper (ppm)	~ ~	2	63	∽ ≥ Silicon (ppm)		7	2	0,	
		400 Severe			80	<sup>0</sup> Severe					
		300	- +		6	0-					
		톱 200			<u></u> 4						
						Abnorma					
		100									
		22	22	23	23		22	23	23-	12	
		Jan3/22 May3/22	Sep7/22 Jan7/23	May3/23	Sep 1/23	Jan3/22 May3/22	Sep 7/22	Jan 7/23	May3/23	Sen1/23	
		Viscosity @ 100	°C	0		Base Numbe					
		<sup>16</sup>			( <sup>в</sup> лно в.						
		14 Abnormal			(D/HO) 6. 9. 8. 9. 9. 9. 9. 9. 9. 9. 9. 9. 9. 9. 9. 9.						
		(0-00) 112 - Base 123		-	Jana de 4						
		10 - Abnormal			Nu ag 2.						
		8			0.	o L					
		Jan3/22 May3/22	Sep7/22 Jan7/23	May3/23	Sep 1/23	Jan3/22 May3/22	Sep 7/22 .	Jan 7/23	May3/23	Sen 1/23	
		Ma	Se	Ma	Se	Ma	Se	ſ	Wa	2	
d	Laboratory	: WearCheck USA	- 501 Madis	lison Ave., Cary, NC 27513			MILLER TRUCK LEASING #119				
ANTAB	Sample No.	: PCA0104293	Received	Received : 20 S			39 INDUSTRIAL AVE HASBROUCK HEIGHTS, N				
C C R E D I T E D	Lab Number		Diagnose		21 Sep 2023 Angela Borella		HASBR	OUCK			
Certificate L2367	Unique Numbe Test Package		Diagnost		yeia Borella		US 07604 Contact: MIKE LONGETTE				
	restrackay		MOB 1 (Additional Tests: TBN) ntact Customer Service at 1-800-237-1369.				Contact: MIKE LONGETTI mlongette@millertransgroup.cor				



Contact/Location: MIKE LONGETTE - MILRUT