

## **OIL ANALYSIS REPORT**

### Area G.LOPES CONSTRUCTION INC./On-Road 345 Component

#### Component Diesel Engine

Fluid PETRO CANADA DURON SHP 15W40 (10 GAL)

#### DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor.

#### Wear

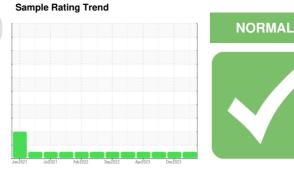
All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil.

#### Fluid Condition

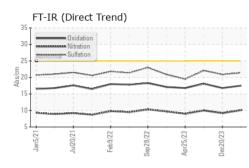
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

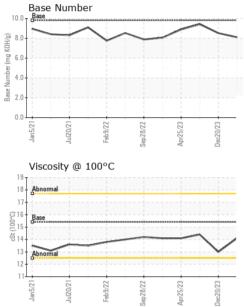


SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0122614	PCA0110112	PCA0104703
Sample Date		Client Info		23 Apr 2024	20 Dec 2023	30 Aug 2023
Machine Age	mls	Client Info		252000	232000	212000
Oil Age	mls	Client Info		93104	93104	93104
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<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	>200	21	15	17
Chromium	ppm	ASTM D5185m	>6	1	<1	1
Nickel	ppm	ASTM D5185m	>3	0	0	0
Titanium	ppm	ASTM D5185m		<1	<1	1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m		8	5	4
Lead	ppm	ASTM D5185m	>10	0	0	<1
Copper	ppm	ASTM D5185m	>50	6	3	6
Tin	ppm	ASTM D5185m	>6	0	0	<1
Vanadium	ppm	ASTM D5185m	20	0	0	<1
Cadmium	ppm	ASTM D5185m		0	0	0
	1-1-			-		
ADDITIVES		method	limit/base	current	historv1	historv2
ADDITIVES	ppm	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	0	10	1
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	0 0	10 0	1 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	0 0 62	10 0 62	1 0 61
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	0 0 62 <1	10 0 62 0	1 0 61 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	0 0 62 <1 1003	10 0 62 0 893	1 0 61 <1 1022
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	0 0 62 <1 1003 1192	10 0 62 0 893 1050	1 0 61 <1 1022 1169
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	0 0 60 0 1010 1070 1150	0 0 62 <1 1003 1192 1035	10 0 62 0 893 1050 1003	1 0 61 <1 1022 1169 1025
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	0 0 62 <1 1003 1192	10 0 62 0 893 1050	1 0 61 <1 1022 1169
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	0 0 60 0 1010 1070 1150 1270	0 0 62 <1 1003 1192 1035 1277	10 0 62 0 893 1050 1003 1215	1 0 61 <1 1022 1169 1025 1323
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	0 0 60 1010 1070 1150 1270 2060	0 0 62 <1 1003 1192 1035 1277 3364	10 0 62 0 893 1050 1003 1215 2731	1 0 61 <1 1022 1169 1025 1323 3394
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	0 0 60 1010 1070 1150 1270 2060	0 0 62 <1 1003 1192 1035 1277 3364 current 4	10 0 62 0 893 1050 1003 1215 2731 history1	1 0 61 <1 1022 1169 1025 1323 3394 history2 5
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	0 0 60 1010 1070 1150 1270 2060 Limit/base	0 0 62 <1 1003 1192 1035 1277 3364 current	10 0 62 0 893 1050 1003 1215 2731 history1 5	1 0 61 <1 1022 1169 1025 1323 3394 history2
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	0 0 60 1010 1070 1150 1270 2060 Limit/base	0 0 62 <1 1003 1192 1035 1277 3364 current 4 7	10 0 62 0 893 1050 1003 1215 2731 history1 5 1 4	1 0 61 <1 1022 1169 1025 1323 3394 history2 5 2 5 5
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	0 0 0 1010 1070 1150 1270 2060 <b>limit/base</b> >50 	0 0 62 <1 1003 1192 1035 1277 3364 <i>current</i> 4 7 4	10 0 62 0 893 1050 1003 1215 2731 history1 5 1 4 4 history1	1 0 61 <1 1022 1169 1025 1323 3394 history2 5 2 5 5 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	0 0 0 1010 1070 1150 1270 2060 <b>limit/base</b> >20 <b>limit/base</b>	0 0 62 <1 1003 1192 1035 1277 3364 <i>current</i> 4 7 4 <i>current</i> 0.6	10 0 62 0 893 1050 1003 1215 2731 history1 5 1 4 history1 0.6	1 0 61 <1 1022 1169 1025 1323 3394 history2 5 2 5 2 5 5 history2 0.7
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 TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >50 <i>limit/base</i> >20	0 0 62 <1 1003 1192 1035 1277 3364 <i>current</i> 4 7 4 <i>current</i> 0.6 10.1	10 0 62 0 893 1050 1003 1215 2731 history1 5 1 4 4 history1 0.6 9.2	1 0 61 <1 1022 1169 1025 1323 3394 history2 5 2 5 2 5 <i>history2</i> 0.7 10.0
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	0 0 0 1010 1070 1150 1270 2060 <b>imit/base</b> >50 <b>imit/base</b> >3 >20 >3 >20	0 0 62 <1 1003 1192 1035 1277 3364 <i>current</i> 4 7 4 <i>current</i> 0.6 10.1 21.4	10 0 62 0 893 1050 1003 1215 2731 <b>history1</b> 5 1 4 <b>history1</b> 0.6 9.2 20.9	1 0 61 <1 1022 1169 1025 1323 3394 history2 5 2 5 5 <u>history2</u> 0.7 10.0 22.1
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 D7624	0 0 0 1010 1070 1150 1270 2060 2060 2060 200 200 200 200 200 200	0 0 62 <1 1003 1192 1035 1277 3364 <i>current</i> 4 7 4 <i>current</i> 0.6 10.1 21.4	10 0 62 0 893 1050 1003 1215 2731 history1 5 1 4 4 history1 0.6 9.2 20.9 history1	1 0 61 <1 1022 1169 1025 1323 3394 history2 5 2 5 5 history2 0.7 10.0 22.1 history2
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	0 0 0 1010 1070 1150 1270 2060 <b>imit/base</b> >50 <b>imit/base</b> >3 >20 >3 >20	0 0 62 <1 1003 1192 1035 1277 3364 <i>current</i> 4 7 4 <i>current</i> 0.6 10.1 21.4	10 0 62 0 893 1050 1003 1215 2731 <b>history1</b> 5 1 4 <b>history1</b> 0.6 9.2 20.9	1 0 61 <1 1022 1169 1025 1323 3394 <b>history2</b> 5 2 5 <b>5</b> <b>history2</b> 0.7 10.0 22.1



# **OIL ANALYSIS REPORT**





	VISUAL		method	limit/base	current	histo	ory1	history2					
	White Metal	scalar	*Visual	NONE	NONE	NONE		NONE					
	Yellow Metal	scalar	*Visual	NONE	NONE	NONE		NONE					
State Low	Precipitate	scalar	*Visual	NONE	NONE	NONE		NONE					
	Silt	scalar	*Visual	NONE	NONE	NONE		NONE					
	Debris	scalar	*Visual	NONE	NONE	NONE	1 1	NONE					
and the second	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	1	NONE					
0/23	Appearance	scalar	*Visual	NORML	NORML	NORM	/L ľ	NORML					
23	Odor	scalar	*Visual	NORML	NORML	NORM	/L ľ	NORML					
	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG		NEG					
anteinininini -	Free Water	scalar	*Visual		NEG	NEG		NEG					
	FLUID PROPE	RTIES	method	limit/base	current	histo	ory1	history2					
	Visc @ 100°C	cSt	ASTM D445	15.4	14.1	13.0		14.4					
	GRAPHS												
	Iron (ppm)				Lead (ppm)								
	Smuara				20 Severe								
Dec20/23	300 - Severe												
ā	튭 200 - Abnormal				Abnormal								
	100-				5+								
1	0				0								
	Jan5/21 Jul20/21	Sep 28/22 -	Apr25/23 -	Dec20/23 .	Jan5/21	Feb9/22 -	Sep28/22 . Apr25/23 .	Dec20/23 -					
1	Jai Juli Feb	Sep2	Aprź	Deci	Juľ	Fet	Sep.	Dec2					
	Aluminum (ppm)				Chromium (	ppm)							
$\checkmark$	100 Severe				Severe								
	80 -				10 Bevere								
	Abnormal			-	6 Abrormal								
Dec20/23	40				4								
ā	20				2-								
	23 72 72 70	22 -	23		0 2 2 2 2	22	22	- 23 -					
	Jan5/21 Jul20/21 Feb9/22	Sep 28/22	Apr25/23	Dec20/23	Jan5/21 Jul20/21	Feb 9/22	Sep28/22 Apr25/23	Dec20/23					
	Copper (ppm) Silicon (ppm)												
	400-			6	10								
	g 300-				Abnormal								
	E 200			튭4									
	100 Severa			2	20 -								
	0	2		m		5	3						
	Jan5/21 Jul20/21 Feb9/22	Sep28/22	Apr25/23	Dec20/23	Jan5/21 Jul20/21	Feb 9/22	Sep28/22 Apr25/23	Dec20/23					
			Ap	De	-		Ap	De					
	Viscosity @ 100°	Viscosity @ 100°C Base Number											
	18 Abnormal			(B/HO		>>>		$\sim$					
				Base Number (mg KOH/g) 7 8 9 8									
	00 16 - Base 8				.0								
	Abnormal			Winn as 2									
	10												
	Jan5/21 Jul20/21	Sep28/22 -	Apr25/23 -		Jan5/21- Jul20/21-	Feb 9/22	Sep 28/22 -	0/23					
	ul2 eb(	Sep 24	Apr2	Dec20/23	Jul2	Feb	Sep 28/22 Apr25/23	Dec20/23					
	· - 4												
	, , t												
oratory	: WearCheck USA - 50	)1 Madisc	on Ave., Car	y, NC 27513		G LOP		FRUCTIO					
oratory pple No.	: WearCheck USA - 50 : PCA0122614	Rece	ived : 2	6 Apr 2024		G LOP	565 WIN	THROP S					
ple No. Number	: WearCheck USA - 5( : PCA0122614 : 06161700	Rece Teste	ived : 2 ed : 2	6 Apr 2024 8 Apr 2024		G LOP	565 WIN <sup>-</sup> TAU	THROP S <sup>.</sup> NTON, M					
nple No. Number ue Number	: WearCheck USA - 50 : PCA0122614	Rece Teste	ived : 2 ed : 2	6 Apr 2024	Ves Davis		565 WIN <sup>-</sup> TAU	THROP S <sup>-</sup> NTON, M/ US 0278					

Unique Number : 10997 Test Package : MOB Certificate L2367 To discuss this sample report, contact \* - 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)

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