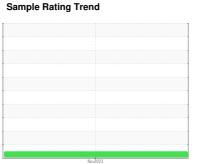


OIL ANALYSIS REPORT









Machine Id 914051 Component **Diesel Engine**

PETRO CANADA DURO

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

Contamination

There is no indication of any contamination in the

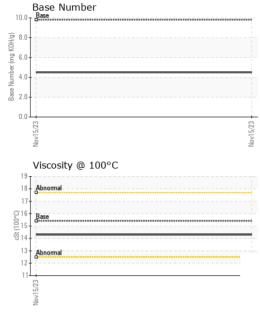
Fluid Condition

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 limit/base current history1 history2	N SHP 15W40 (3	36 QTS)			Nov2023		
Client Info CFL0059235 Company Client Info Not Changd Client Info Contain Info Contain Info Client In	SAMPLE INFOR	RMATION	method			history1	history2
Comparison							
Machine Age hrs Client Info 31							
Oil Changed		hre					
Colic Client Info Not Changd Client Info NORMAL Color Contamination Contaminat							
CONTAMINATION method milit/base current history1 history2	•	1110					
Water WC Method WC Method WC Method WC Method WC Method WC Method NEG WC Method WC Metho	Sample Status						
Water WC Method >0.2 NEG Glycol WC Method NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >120 89 Chromium ppm ASTM D5185m >20 5 Nickel ppm ASTM D5185m >5 <1	CONTAMINAT	TION	method	limit/base	current	history1	history2
Water WC Method WC Method NEG NEG NEG NE	Fuel		WC Method	>3.0	<1.0		
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >120 89 Chromium ppm ASTM D5185m >20 5 Nickel ppm ASTM D5185m >2 <1	Water		WC Method	>0.2			
Chromium	Glycol		WC Method		NEG		
Chromium ppm ASTM D5185m >20 5	WEAR METAL	_S	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>120	89		
Nickel	Chromium		ASTM D5185m	>20			
Description	Nickel		ASTM D5185m	>5	<1		
Silver							
Aluminum	Silver		ASTM D5185m	>2	0		
Lead	Aluminum		ASTM D5185m	>20	8		
Tin	Lead		ASTM D5185m	>40	2		
Vanadium ppm ASTM D5185m 0 Cadmium ppm ASTM D5185m 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 2 Barium ppm ASTM D5185m 0 0 Molybdenum ppm ASTM D5185m 0 0 Manganese ppm ASTM D5185m 0 1 Magnesium ppm ASTM D5185m 1010 991 Calcium ppm ASTM D5185m 1070 1141 Phosphorus ppm ASTM D5185m 1270 1300 Sulfur ppm ASTM D5185m 2060 2710 CONTAMINANTS method limit/base current history1<	Copper		ASTM D5185m	>330	4		
Cadmium ppm ASTM D5185m 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 2 Barium ppm ASTM D5185m 0 0 Molybdenum ppm ASTM D5185m 0 1 Manganese ppm ASTM D5185m 0 1 Magnesium ppm ASTM D5185m 1070 1141 Calcium ppm ASTM D5185m 1070 1141 Phosphorus ppm ASTM D5185m 1270 1300 Zinc ppm ASTM D5185m 2060 2710 Sulfur ppm ASTM D5185m >25 14 Sodium ppm ASTM D5185m >20 1<	Tin	ppm	ASTM D5185m	>15	2		
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 2 Barium ppm ASTM D5185m 0 0 Molybdenum ppm ASTM D5185m 60 64 Manganese ppm ASTM D5185m 1010 991 Magnesium ppm ASTM D5185m 1070 1141 Calcium ppm ASTM D5185m 1270 1300 Phosphorus ppm ASTM D5185m 1270 1300 Zinc ppm ASTM D5185m 2060 2710 Sulfur ppm ASTM D5185m >25 14 Sodium ppm ASTM D5185m >25 14 Potassium ppm ASTM D5185m	Vanadium	ppm	ASTM D5185m		0		
Boron ppm ASTM D5185m 0 2	Cadmium	ppm	ASTM D5185m		0		
Barium ppm ASTM D5185m 0 0 Molybdenum ppm ASTM D5185m 60 64 Manganese ppm ASTM D5185m 0 1 Magnesium ppm ASTM D5185m 1010 991 Calcium ppm ASTM D5185m 1070 1141 Phosphorus ppm ASTM D5185m 1150 1043 Zinc ppm ASTM D5185m 1270 1300 Sulfur ppm ASTM D5185m 2060 2710 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 14 Sodium ppm ASTM D5185m >20 1 INFRA-RED	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 64 Manganese ppm ASTM D5185m 0 1 Magnesium ppm ASTM D5185m 1010 991 Calcium ppm ASTM D5185m 1070 1141 Phosphorus ppm ASTM D5185m 1150 1043 Zinc ppm ASTM D5185m 1270 1300 Sulfur ppm ASTM D5185m 2060 2710 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 14 Sodium ppm ASTM D5185m >20 1 Potassium ppm ASTM D5185m >20 1 INFRA-RED method limit/bas	Boron	ppm	ASTM D5185m	0	2		
Manganese ppm ASTM D5185m 0 1 Magnesium ppm ASTM D5185m 1010 991 Calcium ppm ASTM D5185m 1070 1141 Phosphorus ppm ASTM D5185m 1150 1043 Zinc ppm ASTM D5185m 1270 1300 Sulfur ppm ASTM D5185m 2060 2710 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 14 Sodium ppm ASTM D5185m >20 1 Potassium ppm ASTM D5185m >20 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844	Barium	ppm	ASTM D5185m	0	0		
Magnesium ppm ASTM D5185m 1010 991 Calcium ppm ASTM D5185m 1070 1141 Phosphorus ppm ASTM D5185m 1150 1043 Zinc ppm ASTM D5185m 1270 1300 Sulfur ppm ASTM D5185m 2060 2710 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 14 Sodium ppm ASTM D5185m 13 Potassium ppm ASTM D5185m >20 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 17.0 Sulfation Abs/.1mm *ASTM D7415 >3	Molybdenum	ppm	ASTM D5185m	60	64		
Calcium ppm ASTM D5185m 1070 1141 Phosphorus ppm ASTM D5185m 1150 1043 Zinc ppm ASTM D5185m 1270 1300 Sulfur ppm ASTM D5185m 2060 2710 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 14 Sodium ppm ASTM D5185m >20 1 Potassium ppm ASTM D5185m >20 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 1.6 Nitration Abs/:1mm *ASTM D7415 >30 30.7 FLUID DEGRADATION method li		ppm	ASTM D5185m	0	1		
Phosphorus ppm ASTM D5185m 1 150 1043 Zinc ppm ASTM D5185m 1 270 1300 Sulfur ppm ASTM D5185m 2060 2710 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 14 Sodium ppm ASTM D5185m >20 1 Potassium ppm ASTM D5185m >20 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 1.6 Nitration Abs/cm *ASTM D7624 >20 17.0 Sulfation Abs/.1mm *ASTM D7415 >30 30.7 FLUID DEGRADATION method </td <td>Magnesium</td> <td>ppm</td> <td>ASTM D5185m</td> <td>1010</td> <th>991</th> <td></td> <td></td>	Magnesium	ppm	ASTM D5185m	1010	991		
Zinc ppm ASTM D5185m 1270 1300 Sulfur ppm ASTM D5185m 2060 2710 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 14 Sodium ppm ASTM D5185m 13 Potassium ppm ASTM D5185m >20 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 1.6 Nitration Abs/cm *ASTM D7624 >20 17.0 Sulfation Abs/.1mm *ASTM D7415 >30 30.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414	Calcium	ppm	ASTM D5185m	1070	1141		
Sulfur ppm ASTM D5185m 2060 2710 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 14 Sodium ppm ASTM D5185m >20 1 Potassium ppm ASTM D5185m >20 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 1.6 Nitration Abs/cm *ASTM D7624 >20 17.0 Sulfation Abs/.1mm *ASTM D7415 >30 30.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 31.6	Phosphorus	ppm	ASTM D5185m	1150	1043		
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 14 Sodium ppm ASTM D5185m 13 Potassium ppm ASTM D5185m >20 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 1.6 Nitration Abs/cm *ASTM D7624 >20 17.0 Sulfation Abs/.1mm *ASTM D7415 >30 30.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 31.6	Zinc	ppm	ASTM D5185m	1270	1300		
Silicon ppm ASTM D5185m >25 14 Sodium ppm ASTM D5185m 13 Potassium ppm ASTM D5185m >20 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 1.6 Nitration Abs/cm *ASTM D7624 >20 17.0 Sulfation Abs/.1mm *ASTM D7415 >30 30.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 31.6	Sulfur	ppm	ASTM D5185m	2060	2710		
Sodium ppm ASTM D5185m 13 Potassium ppm ASTM D5185m >20 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 1.6 Nitration Abs/cm *ASTM D7624 >20 17.0 Sulfation Abs/.1mm *ASTM D7415 >30 30.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 31.6	CONTAMINAN	NTS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 1.6 Nitration Abs/cm *ASTM D7624 >20 17.0 Sulfation Abs/.1mm *ASTM D7415 >30 30.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 31.6	Silicon	ppm	ASTM D5185m	>25	14		
INFRA-RED	Sodium	ppm	ASTM D5185m		13		
Soot % % *ASTM D7844 >4 1.6 Nitration Abs/cm *ASTM D7624 >20 17.0 Sulfation Abs/.1mm *ASTM D7415 >30 30.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 31.6	Potassium	ppm	ASTM D5185m	>20	1		
Nitration Abs/cm *ASTM D7624 >20 17.0 Sulfation Abs/.1mm *ASTM D7415 >30 30.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 31.6	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 30.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 31.6	Soot %	%	*ASTM D7844	>4	1.6		
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 31.6	Nitration	Abs/cm	*ASTM D7624	>20	17.0		
Oxidation	Sulfation	Abs/.1mm	*ASTM D7415	>30	30.7		
	FLUID DEGRA	DATION	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 9.8 4.5	Oxidation	Abs/.1mm	*ASTM D7414	>25	31.6		
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	4.5		



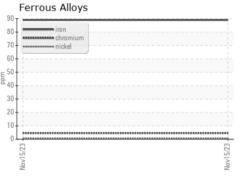
OIL ANALYSIS REPORT

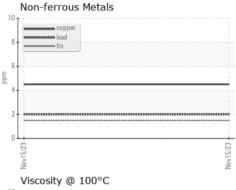


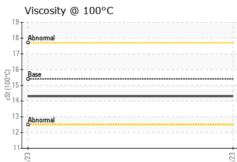
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE		
Yellow Metal	scalar	*Visual	NONE	NONE		
Precipitate	scalar	*Visual	NONE	NONE		
Silt	scalar	*Visual	NONE	NONE		
Debris	scalar	*Visual	NONE	NONE		
Sand/Dirt	scalar	*Visual	NONE	NONE		
Appearance	scalar	*Visual	NORML	NORML		
Odor	scalar	*Visual	NORML	NORML		
Emulsified Water	scalar	*Visual	>0.2	NEG		
Free Water	scalar	*Visual		NEG		

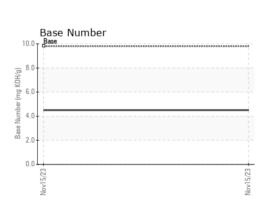
FLUID FROF	LULIES	method			HISTOLAL	HISTOLYZ
Visc @ 100°C	cSt	ASTM D445	15.4	14.3		

GRAPHS











Certificate L2367

Laboratory Sample No. Lab Number

Unique Number : 10753937

: GFL0059235 : 06014793 Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received Diagnosed

: 22 Nov 2023 : 25 Nov 2023 Diagnostician : Don Baldridge

GFL Environmental - 410 - Michigan West 39000 Van Born Rd Wayne, MI US 48184

Contact: Belal Dgheish bdgheish@gflenv.com T: (734)714-2340

To discuss this sample report, contact Customer Service at 1-800-237-1369.

* - 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)

Report Id: GFL410 [WUSCAR] 06014793 (Generated: 11/25/2023 10:45:13) Rev: 1