



WEAR	<b>NORMAL</b>
CONTAMINATION	<b>SEVERE</b>
FLUID CONDITION	<b>NORMAL</b>



Machine Id  
**420092 - SW4020**  
Component  
**Diesel Engine**  
Fluid  
**PETRO CANADA DURON SHP 15W40 (--- GAL)**

**RECOMMENDATION**

We advise that you check the fuel injection system. We recommend that you drain the oil and perform a filter service on this component if not already done. We recommend an early resample to monitor this condition.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>GFL0128697</b>	GFL0123598	GFL0123604
Sample Date		Client Info		<b>11 Jul 2024</b>	07 Jun 2024	28 May 2024
Machine Age	mls	Client Info		<b>162521</b>	159273	151032
Oil Age	mls	Client Info		<b>162521</b>	159273	151032
Filter Age	mls	Client Info		<b>0</b>	0	0
Oil Changed		Client Info		<b>Not Chngd</b>	Changed	Changed
Filter Changed		Client Info		<b>Not Chngd</b>	Changed	Changed
Sample Status				<b>SEVERE</b>	SEVERE	SEVERE

**WEAR**

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>120	<b>6</b>	5	<1
Chromium	ppm	ASTM D5185m	>20	<b>&lt;1</b>	<1	0
Nickel	ppm	ASTM D5185m	>5	<b>0</b>	<1	0
Titanium	ppm	ASTM D5185m	>2	<b>0</b>	<1	0
Silver	ppm	ASTM D5185m	>2	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m	>20	<b>2</b>	2	6
Lead	ppm	ASTM D5185m	>40	<b>0</b>	1	0
Copper	ppm	ASTM D5185m	>330	<b>0</b>	4	<1
Tin	ppm	ASTM D5185m	>15	<b>0</b>	<1	0
Vanadium	ppm	ASTM D5185m		<b>0</b>	0	0
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE

**CONTAMINATION**

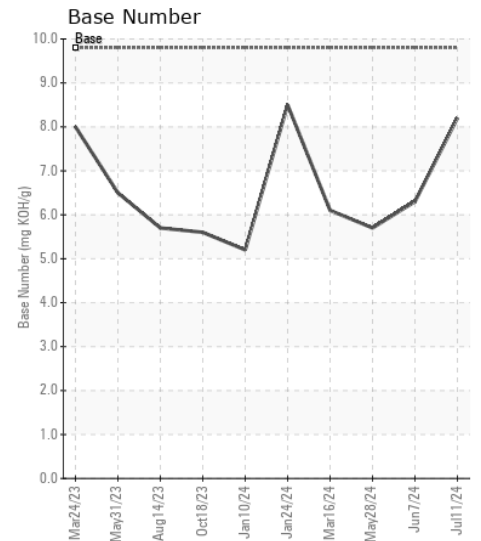
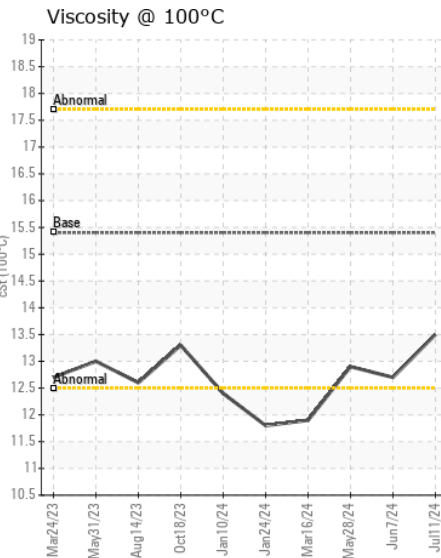
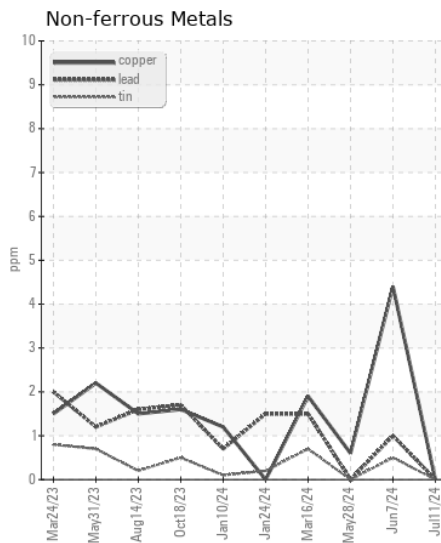
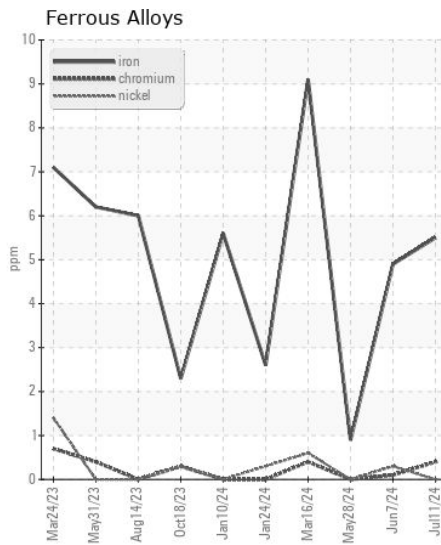
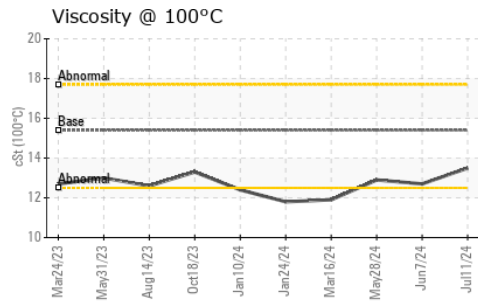
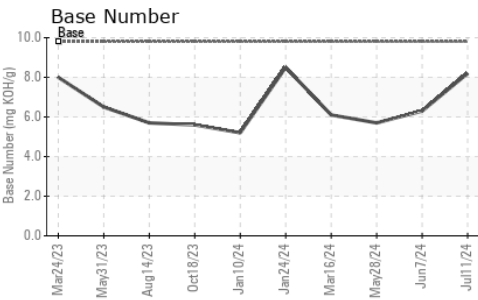
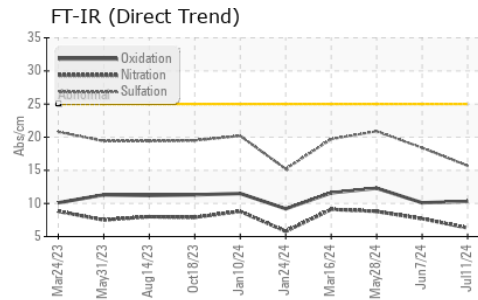
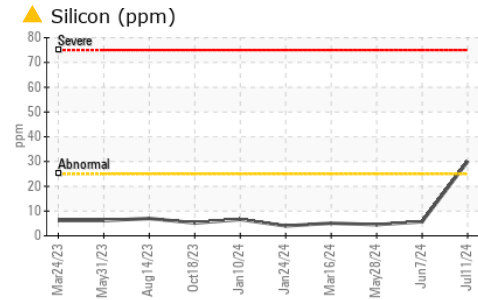
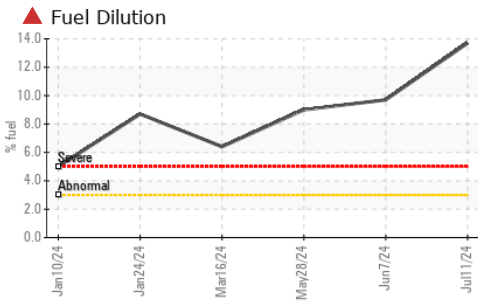
There is a high amount of fuel present in the oil. Elemental level of silicon (Si) above normal indicating ingress of seal material.

Silicon	ppm	ASTM D5185m	>25	<b>▲ 30</b>	6	4
Potassium	ppm	ASTM D5185m	>20	<b>&lt;1</b>	2	21
Fuel	%	ASTM D3524	>3.0	<b>▲ 13.7</b>	▲ 9.7	▲ 9.0
Water		WC Method	>0.2	<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844	>4	<b>0.1</b>	0.2	0.2
Nitration	Abs/cm	*ASTM D7624	>20	<b>6.3</b>	7.7	8.8
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>15.7</b>	18.4	20.9
Silt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Debris	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Appearance	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Odor	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	<b>NEG</b>	NEG	NEG

**FLUID CONDITION**

The BN result indicates that there is suitable alkalinity remaining in the oil. The oil is no longer serviceable due to the presence of contaminants.

Sodium	ppm	ASTM D5185m		<b>0</b>	1	3
Boron	ppm	ASTM D5185m	0	<b>0</b>	0	0
Barium	ppm	ASTM D5185m	0	<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m	60	<b>0</b>	46	50
Manganese	ppm	ASTM D5185m	0	<b>0</b>	0	<1
Magnesium	ppm	ASTM D5185m	1010	<b>&lt;1</b>	31	29
Calcium	ppm	ASTM D5185m	1070	<b>0</b>	2325	2440
Phosphorus	ppm	ASTM D5185m	1150	<b>320</b>	995	1118
Zinc	ppm	ASTM D5185m	1270	<b>2</b>	1137	1273
Sulfur	ppm	ASTM D5185m	2060	<b>187</b>	3113	3597
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>10.3</b>	10.1	12.3
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	<b>8.2</b>	6.3	5.7
Visc @ 100°C	cSt	ASTM D445	15.4	<b>13.5</b>	12.7	12.9



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : GFL0128697 **Received** : 17 Jul 2024  
**Lab Number** : 06238923 **Tested** : 19 Jul 2024  
**Unique Number** : 11127757 **Diagnosed** : 19 Jul 2024 - Jonathan Hester  
**Test Package** : FLEET ( Additional Tests: PercentFuel )

**GFL Environmental - 983 - Sugar Land Hauling**  
 16011 West Belfort Street  
 Sugar Land, TX  
 US 77498  
 Contact: Adrian Martinez  
 adrianmartinez@gflenv.com

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)

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F: