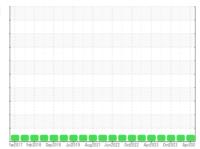


# **OIL ANALYSIS REPORT**

## Sample Rating Trend









Machine Id
4491
Component
Front Diesel Engine
Fluid

PETRO CANADA DURON XL SYN BLEND 15W40 (37 LTR)

## 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

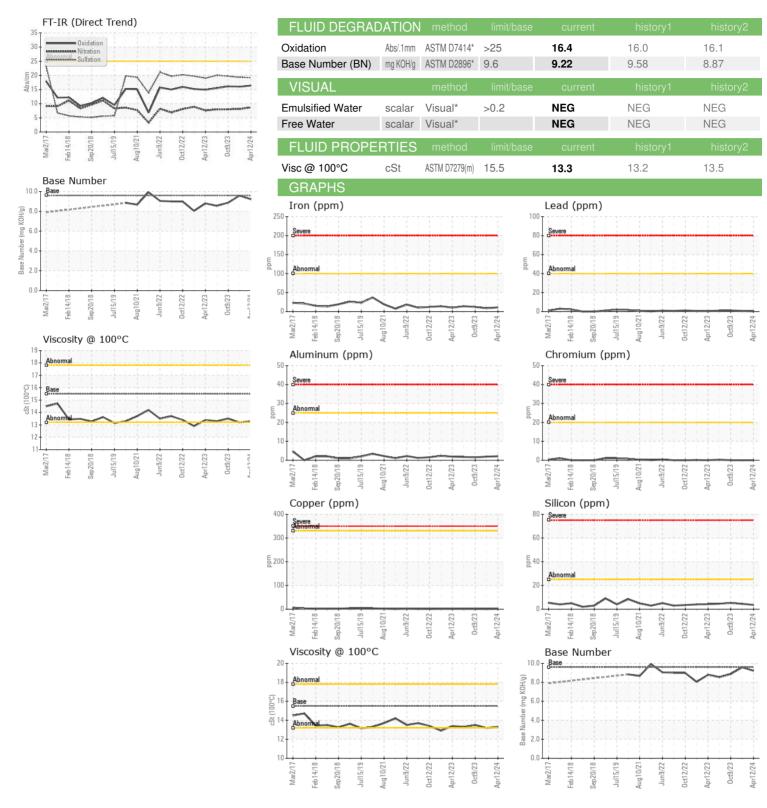
### **Fluid Condition**

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

Sample Number   Client Info   GFL0117312   GFL0099546   GFL0091566   Sample Date   Client Info   12 Apr 2024   28 Dec 2023   09 Oct 2023   Machine Age   hrs   Client Info   1050   0   0   O   O   O   O   O   O   O	04401-						
Client Info	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Machine Age   hrs   Client Info   1050   0   0   0   0   0   0   0   0   0	Sample Number		Client Info		GFL0117312	GFL0099546	GFL0091560
Oil Age	Sample Date		Client Info		12 Apr 2024	28 Dec 2023	09 Oct 2023
Colient Info	Machine Age	hrs	Client Info		30832		
NORMAL   NORMAL   NORMAL   NORMAL   CONTAMINATION   method   imit/base   current   history1   history2   history2   variety   history2   history2   NEG   NEG	Oil Age	hrs	Client Info		1050	0	0
CONTAMINATION	Oil Changed		Client Info		Changed	Changed	Changed
Fuel	Sample Status				NORMAL	NORMAL	NORMAL
Water         WC Method         >0.2         NEG         NEG         NEG           Glycol         WC Method         Imitibase         current         history1         history2           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185(m)         >20         0         0         0           Ohromium         ppm         ASTM D5185(m)         >20         0         0         0           Nickel         ppm         ASTM D5185(m)         >2         <1         <1         0           Silver         ppm         ASTM D5185(m)         >2         <1         <1         0           Silver         ppm         ASTM D5185(m)         >2         0         0         <1           Aluminum         ppm         ASTM D5185(m)         >20         <1         <1         1           Lead         ppm         ASTM D5185(m)         >20         <1         <1         <1           Copper         ppm         ASTM D5185(m)         >15         0         <1         <1         <1           Lead         ppm         ASTM D5185(m)         0         0	CONTAMINAT	ION	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>6.0	<1.0	<1.0	<1.0
WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185(m)         >100         11         9         12           Chromium         ppm         ASTM D5185(m)         >20         0         0         0           Nickel         ppm         ASTM D5185(m)         >2         -1         <1	Water		WC Method	>0.2	NEG	NEG	NEG
	Glycol		WC Method		NEG	NEG	NEG
Chromium	WEAR METAL	_S	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185(m)	>100	11	9	12
Titanium	Chromium	ppm	ASTM D5185(m)	>20	0	0	0
Silver	Nickel	ppm	ASTM D5185(m)	>2	<1	<1	0
Aluminum	Titanium	ppm	ASTM D5185(m)		0	0	0
Lead	Silver	ppm	ASTM D5185(m)	>2	0	0	<1
Copper         ppm         ASTM D5185(m)         >330         1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <0          <1         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0         <0	Aluminum	ppm	ASTM D5185(m)	>25	2	2	2
Tin	Lead	ppm	ASTM D5185(m)	>40	<1	<1	1
Antimony         ppm         ASTM D5185(m)         0         0         0           Vanadium         ppm         ASTM D5185(m)         0         0         0           Beryllium         ppm         ASTM D5185(m)         0         0         0           Cadmium         ppm         ASTM D5185(m)         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185(m)         1         2         2         2         2           Barium         ppm         ASTM D5185(m)         1         0         0         <1	Copper	ppm	ASTM D5185(m)	>330	1	<1	<1
Vanadium         ppm         ASTM D5185(m)         0         0         0           Beryllium         ppm         ASTM D5185(m)         0         0         0           Cadmium         ppm         ASTM D5185(m)         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185(m)         1         2         2         2         2           Barium         ppm         ASTM D5185(m)         1         0         0         <1         0         <1         0         <1         0         <1         0         <1         0         <1         0         <1         0         <1         0         <1         0         <1         0         <1         0         <1         0         <1         0         0         <1         0         <1         0         0         <1         0         0         <1         0         0         <1         0         0         <1         0         0         0         <1         0         0         0         0         0         0         0         0         0 <th< td=""><td>Tin</td><td>ppm</td><td>ASTM D5185(m)</td><td>&gt;15</td><th>0</th><td>&lt;1</td><td>0</td></th<>	Tin	ppm	ASTM D5185(m)	>15	0	<1	0
Beryllium	Antimony	ppm	ASTM D5185(m)		0	0	0
Cadmium         ppm         ASTM D5185(m)         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185(m)         1         2         2         2           Barium         ppm         ASTM D5185(m)         1         0         0         <1	Vanadium	ppm	ASTM D5185(m)		0	0	0
ADDITIVES	Beryllium	ppm	ASTM D5185(m)		0	0	0
Boron	Cadmium	ppm	ASTM D5185(m)		0	0	0
Barium	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum         ppm         ASTM D5185(m)         60         57         56         57           Manganese         ppm         ASTM D5185(m)         1         <1         0         0           Magnesium         ppm         ASTM D5185(m)         1010         941         909         941           Calcium         ppm         ASTM D5185(m)         1070         1036         1072         1035           Phosphorus         ppm         ASTM D5185(m)         1150         979         993         970           Zinc         ppm         ASTM D5185(m)         1270         1156         1162         1166           Sulfur         ppm         ASTM D5185(m)         2060         2458         2710         2502           Lithium         ppm         ASTM D5185(m)         2060         2458         2710         2502           Silicon         ppm         ASTM D5185(m)         >25         4         4         5           Sodium         ppm         ASTM D5185(m)         >25         4         4         5           Sodium         ppm         ASTM D5185(m)         >20         <1         <1         <1         <1           INFRA-RED	Boron	ppm	ASTM D5185(m)	1	2	2	2
Manganese         ppm         ASTM D5185(m)         1         <1         0         0           Magnesium         ppm         ASTM D5185(m)         1010         941         909         941           Calcium         ppm         ASTM D5185(m)         1070         1036         1072         1035           Phosphorus         ppm         ASTM D5185(m)         1150         979         993         970           Zinc         ppm         ASTM D5185(m)         1270         1156         1162         1166           Sulfur         ppm         ASTM D5185(m)         2060         2458         2710         2502           Lithium         ppm         ASTM D5185(m)         2060         2458         2710         2502           Lithium         ppm         ASTM D5185(m)         25         4         4         5           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >25         4         4         2         3           Potassium         ppm         ASTM D5185(m)         >20         <1         <1         <1         <1	Barium	ppm	ASTM D5185(m)	1	0	0	<1
Magnesium         ppm         ASTM D5185(m)         1010         941         909         941           Calcium         ppm         ASTM D5185(m)         1070         1036         1072         1035           Phosphorus         ppm         ASTM D5185(m)         1150         979         993         970           Zinc         ppm         ASTM D5185(m)         1270         1156         1162         1166           Sulfur         ppm         ASTM D5185(m)         2060         2458         2710         2502           Lithium         ppm         ASTM D5185(m)         2060         2458         2710         2502           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >25         4         4         5           Sodium         ppm         ASTM D5185(m)         >20         <1         <1         <1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         ASTM D7844*         >3         0.3         0.3         0.4           Nitration         Abs/cm	Molybdenum	ppm	ASTM D5185(m)	60	57	56	57
Calcium         ppm         ASTM D5185(m)         1070         1036         1072         1035           Phosphorus         ppm         ASTM D5185(m)         1150         979         993         970           Zinc         ppm         ASTM D5185(m)         1270         1156         1162         1166           Sulfur         ppm         ASTM D5185(m)         2060         2458         2710         2502           Lithium         ppm         ASTM D5185(m)         <1	Manganese	ppm	ASTM D5185(m)	1	<1	0	0
Phosphorus         ppm         ASTM D5185(m)         1 150         979         993         970           Zinc         ppm         ASTM D5185(m)         1270         1156         1162         1166           Sulfur         ppm         ASTM D5185(m)         2060         2458         2710         2502           Lithium         ppm         ASTM D5185(m)         <1         <1         <1           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >25         4         4         5           Sodium         ppm         ASTM D5185(m)         >20         <1         <1         <1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         ASTM D7844*         >3         0.3         0.3         0.4           Nitration         Abs/cm         ASTM D7624*         >20         8.7         8.1         8.0	Magnesium	ppm	ASTM D5185(m)	1010	941	909	941
Zinc         ppm         ASTM D5185(m)         1270         1156         1162         1166           Sulfur         ppm         ASTM D5185(m)         2060         2458         2710         2502           Lithium         ppm         ASTM D5185(m)         <1	Calcium	ppm	ASTM D5185(m)	1070	1036	1072	1035
Sulfur         ppm         ASTM D5185(m)         2060         2458         2710         2502           Lithium         ppm         ASTM D5185(m)         2060         2458         2710         2502           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >25         4         4         5           Sodium         ppm         ASTM D5185(m)         4         2         3           Potassium         ppm         ASTM D5185(m)         >20         <1         <1         <1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         ASTM D7844*         >3         0.3         0.3         0.4           Nitration         Abs/cm         ASTM D7624*         >20         8.7         8.1         8.0	Phosphorus	ppm	ASTM D5185(m)		979	993	970
Lithium         ppm         ASTM D5185(m)         <1         <1         <1           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >25         4         4         5           Sodium         ppm         ASTM D5185(m)         4         2         3           Potassium         ppm         ASTM D5185(m)         >20         <1         <1         <1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         ASTM D7844*         >3         0.3         0.3         0.4           Nitration         Abs/cm         ASTM D7624*         >20         8.7         8.1         8.0	Zinc	ppm	, ,	1270	1156	1162	1166
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >25         4         4         5           Sodium         ppm         ASTM D5185(m)         4         2         3           Potassium         ppm         ASTM D5185(m)         >20         <1	Sulfur	ppm		2060	2458		
Silicon         ppm         ASTM D5185(m)         >25         4         4         5           Sodium         ppm         ASTM D5185(m)         4         2         3           Potassium         ppm         ASTM D5185(m)         >20         <1         <1         <1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         ASTM D7844*         >3         0.3         0.3         0.4           Nitration         Abs/cm         ASTM D7624*         >20         8.7         8.1         8.0	Lithium	ppm	ASTM D5185(m)		<1	<1	<1
Sodium         ppm         ASTM D5185(m)         4         2         3           Potassium         ppm         ASTM D5185(m)         >20         <1         <1         <1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         ASTM D7844*         >3         0.3         0.3         0.4           Nitration         Abs/cm         ASTM D7624*         >20         8.7         8.1         8.0	CONTAMINAN	NTS	method	limit/base	current	history1	history2
Potassium         ppm         ASTM D5185(m)         >20         <1         <1         <1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         ASTM D7844*         >3         0.3         0.3         0.4           Nitration         Abs/cm         ASTM D7624*         >20         8.7         8.1         8.0	Silicon	ppm	. ,	>25			5
INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         ASTM D7844*         >3         0.3         0.3         0.4           Nitration         Abs/cm         ASTM D7624*         >20         8.7         8.1         8.0	Sodium	ppm	, ,		4		
Soot %         %         ASTM D7844*         >3         0.3         0.3         0.4           Nitration         Abs/cm         ASTM D7624*         >20         8.7         8.1         8.0	Potassium	ppm	ASTM D5185(m)	>20	<1	<1	<1
Nitration         Abs/cm         ASTM D7624*         >20         8.7         8.1         8.0	INFRA-RED		method	limit/base	current	history1	history2
	Soot %	%	ASTM D7844*	>3	0.3	0.3	0.4
Sulfation         Abs/.1mm         ASTM D7415*         >30         19.2         19.3         19.7	Nitration	Abs/cm	ASTM D7624*	>20	8.7	8.1	8.0
	Sulfation	Abs/.1mm	ASTM D7415*	>30	19.2	19.3	19.7



## **OIL ANALYSIS REPORT**





CALA ISO 17025:2017 Accredited Laboratory

Laboratory Sample No.

: GFL0117312 Lab Number : 02630892 Unique Number : 5772045

Test Package : MOB 2

: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 GFL Environmental - 550 - Rocky View County Received : 23 Apr 2024

**Tested** : 23 Apr 2024 Diagnosed

: 23 Apr 2024 - Kevin Marson

220 Carmek Blvd Rocky View County, AB **CA T1X 1X1** Contact: GFL Calgary

calgarymaintenance@gflenv.com T:

F: (403)369-6163

Test denoted (\*) outside scope of accreditation, (m) method modified, (e) tested at external lab. Validity of results and interpretation are based on the sample and information as supplied.

To discuss this sample report, contact Customer Service at 1-800-268-2131.