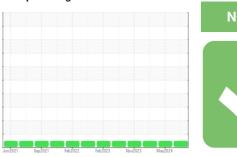


# **OIL ANALYSIS REPORT**

# Sample Rating Trend







Machine Id

382M
Component
Diesel Engine
Fluid

PETRO CANADA DURON SHP 15W40 (--- 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

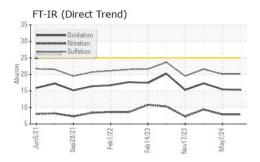
# **Fluid Condition**

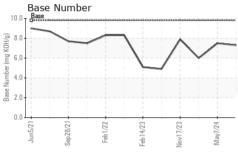
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

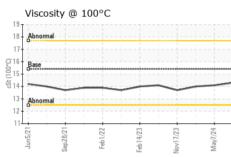
Sample Number   Client Info   GFL0122401   GFL0117566   GFL01088   Sample Date   Client Info   12 Jun 2024   07 May 2024   29 Jan 2024   17890   17893   16748   600   17893   16748   600   17893   16748   600   17893   16748   600   17893   16748   600   17893   16748   600   17893   16748   600   17893   16748   600   17893   16748   600   17893   16748   600   1889   1899	N 3HF 13W40 (-	GAL)	Junzozi	oepzuzi reuzuzz	P802023 N0V2023 W	ldy2UZ4	
Client Info	SAMPLE INFOR	RMATION	method	limit/base	current	history1	history2
Machine Age   hrs   Client Info   17890   17593   16748   600	Sample Number		Client Info		GFL0122401	GFL0117566	GFL010882
Dil Age	Sample Date		Client Info		12 Jun 2024	07 May 2024	29 Jan 2024
Client Info	Machine Age	hrs	Client Info		17890	17593	16748
NORMAL   NEG   N	Oil Age	hrs	Client Info		17593	16748	600
CONTAMINATION         method         limit/base         current         history1         history1           Fuel         WC Method         >3.0         <1.0	Oil Changed		Client Info		Changed	Not Changd	Changed
Fuel	Sample Status				NORMAL	NORMAL	NORMAL
Water         WC Method         >0.2         NEG         Neg <t< td=""><td>CONTAMINAT</td><td>ΓΙΟΝ</td><td>method</td><td>limit/base</td><td>current</td><td>history1</td><td>history2</td></t<>	CONTAMINAT	ΓΙΟΝ	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
WEAR METALS	Water		WC Method	>0.2	NEG	NEG	NEG
Part	Glycol		WC Method		NEG	NEG	NEG
Chromium	WEAR METAL	_S	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>120	7	7	10
Description	Chromium	ppm	ASTM D5185m	>20	0	0	<1
Silver	Nickel	ppm	ASTM D5185m	>5	<1	0	<1
Aluminum	Titanium	ppm	ASTM D5185m	>2	0	0	0
Lead	Silver	ppm	ASTM D5185m	>2	0	0	0
Copper         ppm         ASTM D5185m         >330         0         0         <1   <	Aluminum	ppm	ASTM D5185m	>20	2	1	3
Tin	Lead		ASTM D5185m	>40	<1	<1	<1
Tin	Copper		ASTM D5185m	>330	0	0	<1
Vanadium         ppm         ASTM D5185m         0         0         0           Cadmium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history1           Boron         ppm         ASTM D5185m         0         3         1         2           Barium         ppm         ASTM D5185m         0         0         0         0         <1           Molybdenum         ppm         ASTM D5185m         0         60         60         59         58           Manganese         ppm         ASTM D5185m         0         <1         <1         <1         <1           Magnesium         ppm         ASTM D5185m         1010         1031         931         926           Calcium         ppm         ASTM D5185m         1070         1126         1061         1011           Phosphorus         ppm         ASTM D5185m         1270         1385         1223         1219           Sulfur         ppm         ASTM D5185m         2060         3381         3048         2363           CONTAMINANTS         method         limit/base <td></td> <td></td> <td></td> <td></td> <td>&lt;1</td> <td></td> <td></td>					<1		
Cadmium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         3         1         2           Barium         ppm         ASTM D5185m         0         0         0         <1	Vanadium						
Boron   ppm   ASTM D5185m   0   0   0   0   0   0   0   0	Cadmium				0		
Barium         ppm         ASTM D5185m         0         0         0         <1           Molybdenum         ppm         ASTM D5185m         60         60         59         58           Manganese         ppm         ASTM D5185m         0         <1	ADDITIVES		method	limit/base	current	history1	history2
Barium         ppm         ASTM D5185m         0         0         0         <1           Molybdenum         ppm         ASTM D5185m         60         60         59         58           Manganese         ppm         ASTM D5185m         0         <1	Boron	ppm	ASTM D5185m	0	3	1	2
Molybdenum         ppm         ASTM D5185m         60         60         59         58           Manganese         ppm         ASTM D5185m         0         <1         <1         <1           Magnesium         ppm         ASTM D5185m         1010         1031         931         926           Calcium         ppm         ASTM D5185m         1070         1126         1061         1011           Phosphorus         ppm         ASTM D5185m         1150         1091         1024         941           Zinc         ppm         ASTM D5185m         1270         1385         1223         1219           Sulfur         ppm         ASTM D5185m         2060         3381         3048         2363           CONTAMINANTS         method         limit/base         current         history1         history1           Silicon         ppm         ASTM D5185m         >25         4         4         5           Sodium         ppm         ASTM D5185m         >20         4         1         2           INFRA-RED         method         limit/base         current         history1         history1           Soot %         %         *ASTM D7844	Barium	ppm	ASTM D5185m	0	0	0	<1
Manganese         ppm         ASTM D5185m         0         <1         <1         <1           Magnesium         ppm         ASTM D5185m         1010         1031         931         926           Calcium         ppm         ASTM D5185m         1070         1126         1061         1011           Phosphorus         ppm         ASTM D5185m         1150         1091         1024         941           Zinc         ppm         ASTM D5185m         1270         1385         1223         1219           Sulfur         ppm         ASTM D5185m         2060         3381         3048         2363           CONTAMINANTS         method         limit/base         current         history1         history1           Silicon         ppm         ASTM D5185m         >25         4         4         5           Sodium         ppm         ASTM D5185m         >20         4         1         2           INFRA-RED         method         limit/base         current         history1         history1           Soot %         %         *ASTM D7844         >4         0.7         0.7         0.8           Nitration         Abs/cm         *ASTM D7415	Molybdenum		ASTM D5185m	60	60	59	58
Magnesium         ppm         ASTM D5185m         1010         1031         931         926           Calcium         ppm         ASTM D5185m         1070         1126         1061         1011           Phosphorus         ppm         ASTM D5185m         1150         1091         1024         941           Zinc         ppm         ASTM D5185m         1270         1385         1223         1219           Sulfur         ppm         ASTM D5185m         2060         3381         3048         2363           CONTAMINANTS         method         limit/base         current         history1         history1           Silicon         ppm         ASTM D5185m         >25         4         4         5           Sodium         ppm         ASTM D5185m         >20         4         1         2           INFRA-RED         method         limit/base         current         history1         history           Soot %         %         *ASTM D7844         >4         0.7         0.7         0.8           Nitration         Abs/.1mm         *ASTM D7624         >20         7.9         7.9         9.4           Sulfation         Abs/.1mm         *ASTM D7	-		ASTM D5185m	0	<1	<1	<1
Calcium         ppm         ASTM D5185m         1070         1126         1061         1011           Phosphorus         ppm         ASTM D5185m         1150         1091         1024         941           Zinc         ppm         ASTM D5185m         1270         1385         1223         1219           Sulfur         ppm         ASTM D5185m         2060         3381         3048         2363           CONTAMINANTS         method         limit/base         current         history1         history           Silicon         ppm         ASTM D5185m         >25         4         4         5           Sodium         ppm         ASTM D5185m         4         3         3         3           Potassium         ppm         ASTM D5185m         >20         4         1         2           INFRA-RED         method         limit/base         current         history1         history1           Soot %         %         *ASTM D7844         >4         0.7         0.7         0.8           Nitration         Abs/cm         *ASTM D7624         >20         7.9         7.9         9.4           Sulfation         Abs/.1mm         *ASTM D7	-				1031	931	926
Phosphorus         ppm         ASTM D5185m         1150         1091         1024         941           Zinc         ppm         ASTM D5185m         1270         1385         1223         1219           Sulfur         ppm         ASTM D5185m         2060         3381         3048         2363           CONTAMINANTS         method         limit/base         current         history1         history           Silicon         ppm         ASTM D5185m         >25         4         4         5           Sodium         ppm         ASTM D5185m         >20         4         1         2           INFRA-RED         method         limit/base         current         history1         history           Soot %         %         *ASTM D7844         >4         0.7         0.7         0.8           Nitration         Abs/cm         *ASTM D7624         >20         7.9         7.9         9.4           Sulfation         Abs/.1mm         *ASTM D7415         >30         20.1         20.1         21.6           FLUID DEGRADATION         method         limit/base         current         history1         history1           Oxidation         Abs/.1	•		ASTM D5185m				1011
Zinc         ppm         ASTM D5185m         1270         1385         1223         1219           Sulfur         ppm         ASTM D5185m         2060         3381         3048         2363           CONTAMINANTS         method         limit/base         current         history1         history           Silicon         ppm         ASTM D5185m         >25         4         4         5           Sodium         ppm         ASTM D5185m         20         4         1         2           INFRA-RED         method         limit/base         current         history1         history           Soot %         %         *ASTM D7844         >4         0.7         0.7         0.8           Nitration         Abs/cm         *ASTM D7624         >20         7.9         7.9         9.4           Sulfation         Abs/.1mm         *ASTM D7415         >30         20.1         20.1         21.6           FLUID DEGRADATION method         limit/base         current         history1         history           Oxidation         Abs/.1mm         *ASTM D7414         >25         15.3         15.5         17.3							
Sulfur         ppm         ASTM D5185m         2060         3381         3048         2363           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         4         5           Sodium         ppm         ASTM D5185m         4         3         3           Potassium         ppm         ASTM D5185m         >20         4         1         2           INFRA-RED         method         limit/base         current         history1         history           Soot %         %         *ASTM D7844         >4         0.7         0.7         0.8           Nitration         Abs/cm         *ASTM D7624         >20         7.9         7.9         9.4           Sulfation         Abs/.1mm         *ASTM D7415         >30         20.1         20.1         21.6           FLUID DEGRADATION         method         limit/base         current         history1         history           Oxidation         Abs/.1mm         *ASTM D7414         >25         15.3         15.5         17.3						1223	
Silicon         ppm         ASTM D5185m         >25         4         4         5           Sodium         ppm         ASTM D5185m         4         3         3           Potassium         ppm         ASTM D5185m         >20         4         1         2           INFRA-RED         method         limit/base         current         history1         history           Soot %         %         *ASTM D7844         >4         0.7         0.7         0.8           Nitration         Abs/cm         *ASTM D7624         >20         7.9         7.9         9.4           Sulfation         Abs/.1mm         *ASTM D7415         >30         20.1         20.1         21.6           FLUID DEGRADATION method         limit/base         current         history1         history           Oxidation         Abs/.1mm         *ASTM D7414         >25         15.3         15.5         17.3							
Sodium         ppm         ASTM D5185m         4         3         3           Potassium         ppm         ASTM D5185m         >20         4         1         2           INFRA-RED         method         limit/base         current         history1         history           Soot %         %         *ASTM D7844         >4         0.7         0.7         0.8           Nitration         Abs/cm         *ASTM D7624         >20         7.9         7.9         9.4           Sulfation         Abs/.1mm         *ASTM D7415         >30         20.1         20.1         21.6           FLUID DEGRADATION         method         limit/base         current         history1         history           Oxidation         Abs/.1mm         *ASTM D7414         >25         15.3         15.5         17.3	CONTAMINAN	NTS	method	limit/base	current	history1	history2
Sodium         ppm         ASTM D5185m         4         3         3           Potassium         ppm         ASTM D5185m         >20         4         1         2           INFRA-RED         method         limit/base         current         history1         history           Soot %         %         *ASTM D7844         >4         0.7         0.7         0.8           Nitration         Abs/cm         *ASTM D7624         >20         7.9         7.9         9.4           Sulfation         Abs/.1mm         *ASTM D7415         >30         20.1         20.1         21.6           FLUID DEGRADATION         method         limit/base         current         history1         history           Oxidation         Abs/.1mm         *ASTM D7414         >25         15.3         15.5         17.3	Silicon	ppm	ASTM D5185m	>25	4	4	5
Potassium         ppm         ASTM D5185m         >20         4         1         2           INFRA-RED         method         limit/base         current         history1         history           Soot %         %         *ASTM D7844         >4         0.7         0.7         0.8           Nitration         Abs/cm         *ASTM D7624         >20         7.9         7.9         9.4           Sulfation         Abs/.1mm         *ASTM D7415         >30         20.1         20.1         21.6           FLUID DEGRADATION         method         limit/base         current         history1         history           Oxidation         Abs/.1mm         *ASTM D7414         >25         15.3         15.5         17.3	Sodium		ASTM D5185m		4	3	3
Soot %         %         *ASTM D7844 >4         0.7         0.7         0.8           Nitration         Abs/cm         *ASTM D7624 >20         7.9         7.9         9.4           Sulfation         Abs/.1mm         *ASTM D7415 >30         20.1         20.1         21.6           FLUID DEGRADATION method limit/base current history1         history1         history1           Oxidation         Abs/.1mm         *ASTM D7414 >25         15.3         15.5         17.3	Potassium	ppm	ASTM D5185m	>20	4	1	2
Nitration         Abs/cm         *ASTM D7624         >20         7.9         7.9         9.4           Sulfation         Abs/.1mm         *ASTM D7415         >30         20.1         20.1         21.6           FLUID DEGRADATION method limit/base current         history1         history           Oxidation         Abs/.1mm         *ASTM D7414         >25         15.3         15.5         17.3	INFRA-RED		method	limit/base	current	history1	history2
Sulfation         Abs/.1mm         *ASTM D7415         >30         20.1         20.1         21.6           FLUID DEGRADATION method limit/base current history1         history1         history           Oxidation         Abs/.1mm         *ASTM D7414         >25         15.3         15.5         17.3	Soot %	%	*ASTM D7844	>4	0.7	0.7	0.8
Sulfation         Abs/.1mm         *ASTM D7415         >30         20.1         20.1         21.6           FLUID DEGRADATION method limit/base current history1         history1         history           Oxidation         Abs/.1mm         *ASTM D7414         >25         15.3         15.5         17.3	Nitration	Abs/cm	*ASTM D7624	>20	7.9	7.9	9.4
Oxidation Abs/.1mm *ASTM D7414 >25 <b>15.3</b> 15.5 17.3			*ASTM D7415	>30			
	FLUID DEGRA	AOITAD.	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	15.3	15.5	17.3
	Base Number (BN)		ASTM D2896		7.3	7.5	6.0



# **OIL ANALYSIS REPORT**



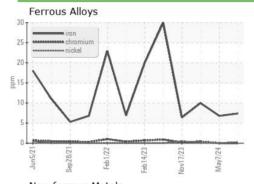


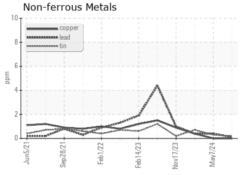


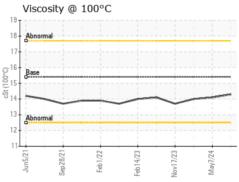
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

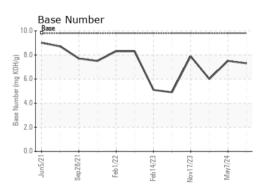
FLUID PROPI	ERITES	method			History i	nistoryz
Visc @ 100°C	cSt	ASTM D445	15.4	14.3	14.1	14.0

# **GRAPHS**













Certificate 12367

Laboratory Sample No.

: GFL0122401 Lab Number : 06215357 Unique Number : 11088221 Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 20 Jun 2024

**Tested** : 21 Jun 2024 Diagnosed

: 21 Jun 2024 - Wes Davis To discuss this sample report, contact Customer Service at 1-800-237-1369.

Sterling Heights, MI US 48313 Contact: Frank Wolak fwolak@gflenv.com T: (586)825-9514

GFL Environmental - 415 - Michigan East

\* - 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) 6200 Elmridge