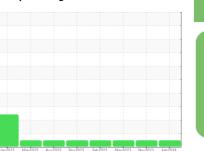


# **OIL ANALYSIS REPORT**

### Sample Rating Trend









Machine Id 927056 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

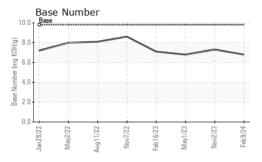
### **Fluid Condition**

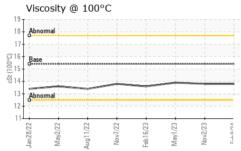
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Number         Client Info         GFL0100399         GFL0092528         GFL007           Sample Date         Client Info         09 Feb 2024         02 Nov 2023         01 May           Machine Age         hrs         Client Info         17461         16900         15831           Oil Age         hrs         Client Info         607         449         460           Oil Changed         Client Info         Changed         Not Changd         Change           Sample Status         NORMAL         NORMAL         NORMAL         NORMAL         NORMAL           CONTAMINATION         method         Imit/base         current         history1         hist           CONTAMINATION         method         Imit/base         current         history1         hist           Wister         WC Method         >0.0         <1.0         <1.0         <1.0         <1.0           Water         WC Method         >0.0         NEG         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         hist           Iron         ppm         ASTM 05185n         >12.0         1         <1         <1	14 3111 1344-0 (	- GAL)	Jan 2022 N	May2022 Aug2022 Nov20	22 Feb 2023 May 2023 Nov 2023	Feb2024	
Sample Date   Client Info   09 Feb 2024   02 Nov 2023   01 May Machine Age   hrs   Client Info   17461   16900   15831   001 Age   hrs   Client Info   Changed   Not Changed   Not Changed   North Changed	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age         hrs         Client Info         17461         16900         15831           Oil Age         hrs         Client Info         607         449         460           Oil Changed         Client Info         Changed         Not Changed         Changed         Not Changed         Not Changed         NoRMAL	Sample Number		Client Info		GFL0100399	GFL0092528	GFL007793
Oil Age	Sample Date		Client Info		09 Feb 2024	02 Nov 2023	01 May 2023
Contained   Client Info   Changed   Not Changed   Normal   Norma	Machine Age	hrs	Client Info		17461	16900	15831
NORMAL   NORMAL   NORMAL   NORMAL   CONTAMINATION   method   limit/base   current   history1   hist   history1   hist   history2   hist   history2   hist   hist	Oil Age	hrs	Client Info		607	449	460
CONTAMINATION	Oil Changed		Client Info		Changed	Not Changd	Changed
Fuel	Sample Status				NORMAL	NORMAL	NORMAL
Water Glycol         WC Method         >0.2         NEG NEG NEG         NEG NEG           WEAR METALS         method         limit/base         current         history1         hist           Iron         ppm         ASTM D5185m         >120         10         8         7           Chromium         ppm         ASTM D5185m         >20         <1	CONTAMINATI	ON	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
Description	Glycol		WC Method		NEG	NEG	NEG
Chromium	WEAR METALS	S	method	limit/base	current	history1	history2
Nickel	ron	ppm	ASTM D5185m	>120	10	8	7
Description	Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Silver	Nickel	ppm	ASTM D5185m	>5	0	<1	0
Aluminum	Titanium	ppm	ASTM D5185m	>2	0	<1	0
Lead	Silver	ppm	ASTM D5185m	>2		0	0
Copper         ppm         ASTM D5185m         >330         1         1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1	Aluminum	ppm	ASTM D5185m	>20	3	2	<1
Tin	_ead	ppm	ASTM D5185m	>40	1	1	0
Vanadium         ppm         ASTM D5185m         0         0         0           Cadmium         ppm         ASTM D5185m         0         <1         0           ADDITIVES         method         limit/base         current         history1         hist           Boron         ppm         ASTM D5185m         0         1         <1         2           Barium         ppm         ASTM D5185m         0         0         5         0           Molybdenum         ppm         ASTM D5185m         0         60         60         62         59           Manganese         ppm         ASTM D5185m         0         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1 <t< td=""><td>Copper</td><td>ppm</td><td>ASTM D5185m</td><td>&gt;330</td><th>1</th><td>1</td><td>&lt;1</td></t<>	Copper	ppm	ASTM D5185m	>330	1	1	<1
Cadmium         ppm         ASTM D5185m         0         <1         0           ADDITIVES         method         limit/base         current         history1         hist           Boron         ppm         ASTM D5185m         0         1         <1	Tin	ppm	ASTM D5185m	>15	<1	<1	<1
ADDITIVES         method         limit/base         current         history1         hist           Boron         ppm         ASTM D5185m         0         1         <1	Vanadium	ppm	ASTM D5185m		0	0	0
Boron	Cadmium	ppm	ASTM D5185m		0	<1	0
Barium         ppm         ASTM D5185m         0         0         5         0           Molybdenum         ppm         ASTM D5185m         60         60         62         59           Manganese         ppm         ASTM D5185m         0         <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum         ppm         ASTM D5185m         60         60         62         59           Manganese         ppm         ASTM D5185m         0         <1	Boron	ppm	ASTM D5185m	0			2
Manganese         ppm         ASTM D5185m         0         <1         <1         <1           Magnesium         ppm         ASTM D5185m         1010         1019         926         1023           Calcium         ppm         ASTM D5185m         1070         1046         1046         1081           Phosphorus         ppm         ASTM D5185m         1150         1053         1065         1047           Zinc         ppm         ASTM D5185m         1270         1289         1207         1320           Sulfur         ppm         ASTM D5185m         2060         2957         2997         3644           CONTAMINANTS         method         limit/base         current         history1         hist           Silicon         ppm         ASTM D5185m         >25         4         5         3           Sodium         ppm         ASTM D5185m         >20         4         2         <1	Barium	ppm	ASTM D5185m	0	0	5	0
Magnesium         ppm         ASTM D5185m         1010         1019         926         1023           Calcium         ppm         ASTM D5185m         1070         1046         1046         1081           Phosphorus         ppm         ASTM D5185m         1150         1053         1065         1047           Zinc         ppm         ASTM D5185m         1270         1289         1207         1320           Sulfur         ppm         ASTM D5185m         2060         2957         2997         3644           CONTAMINANTS         method         limit/base         current         history1         hist           Silicon         ppm         ASTM D5185m         >25         4         5         3           Sodium         ppm         ASTM D5185m         >20         4         2         <1	Molybdenum	ppm	ASTM D5185m	60	60	62	59
Calcium         ppm         ASTM D5185m         1070         1046         1046         1081           Phosphorus         ppm         ASTM D5185m         1150         1053         1065         1047           Zinc         ppm         ASTM D5185m         1270         1289         1207         1320           Sulfur         ppm         ASTM D5185m         2060         2957         2997         3644           CONTAMINANTS         method         limit/base         current         history1         hist           Silicon         ppm         ASTM D5185m         >25         4         5         3           Sodium         ppm         ASTM D5185m         5         2         2         2           Potassium         ppm         ASTM D5185m         >20         4         2         <1	Manganese	ppm	ASTM D5185m	0	<1	<1	<1
Phosphorus         ppm         ASTM D5185m         1150         1053         1065         1047           Zinc         ppm         ASTM D5185m         1270         1289         1207         1320           Sulfur         ppm         ASTM D5185m         2060         2957         2997         3644           CONTAMINANTS         method         limit/base         current         history1         hist           Silicon         ppm         ASTM D5185m         >25         4         5         3           Sodium         ppm         ASTM D5185m         5         2         2         2           Potassium         ppm         ASTM D5185m         >20         4         2         <1	Magnesium	ppm	ASTM D5185m	1010	1019	926	1023
Zinc         ppm         ASTM D5185m         1270         1289         1207         1320           Sulfur         ppm         ASTM D5185m         2060         2957         2997         3644           CONTAMINANTS         method         limit/base         current         history1         hist           Silicon         ppm         ASTM D5185m         >25         4         5         3           Sodium         ppm         ASTM D5185m         5         2         2         2           Potassium         ppm         ASTM D5185m         >20         4         2         <1	Calcium	ppm	ASTM D5185m	1070	1046	1046	1081
Sulfur         ppm         ASTM D5185m         2060         2957         2997         3644           CONTAMINANTS         method         limit/base         current         history1         hist           Silicon         ppm         ASTM D5185m         >25         4         5         3           Sodium         ppm         ASTM D5185m         5         2         2         2           Potassium         ppm         ASTM D5185m         >20         4         2         <1	Phosphorus	ppm	ASTM D5185m	1150	1053	1065	1047
CONTAMINANTS         method         limit/base         current         history1         hist           Silicon         ppm         ASTM D5185m         >25         4         5         3           Sodium         ppm         ASTM D5185m         5         2         2         2           Potassium         ppm         ASTM D5185m         >20         4         2         <1	Zinc	ppm	ASTM D5185m	1270	1289	1207	1320
Silicon         ppm         ASTM D5185m         >25         4         5         3           Sodium         ppm         ASTM D5185m         5         2         2         2           Potassium         ppm         ASTM D5185m         >20         4         2         <1           INFRA-RED         method         limit/base         current         history1         hist           Soot %         %         *ASTM D7844         >4         0.4         0.4         0.3           Nitration         Abs/cm         *ASTM D7624         >20         9.2         8.9         8.5           Sulfation         Abs/.1mm         *ASTM D7415         >30         21.3         21.2         18.5           FLUID DEGRADATION         method         limit/base         current         history1         hist           Oxidation         Abs/.1mm         *ASTM D7414         >25         19.0         18.5         16.3	Sulfur	ppm	ASTM D5185m	2060	2957	2997	3644
Sodium         ppm         ASTM D5185m         5         2         2           Potassium         ppm         ASTM D5185m         >20         4         2         <1	CONTAMINAN	TS	method	limit/base	current	history1	history2
Potassium         ppm         ASTM D5185m         >20         4         2         <1           INFRA-RED         method         limit/base         current         history1         hist           Soot %         %         *ASTM D7844         >4         0.4         0.4         0.3           Nitration         Abs/cm         *ASTM D7624         >20         9.2         8.9         8.5           Sulfation         Abs/.1mm         *ASTM D7415         >30         21.3         21.2         18.5           FLUID DEGRADATION         method         limit/base         current         history1         hist           Oxidation         Abs/.1mm         *ASTM D7414         >25         19.0         18.5         16.3	Silicon	ppm	ASTM D5185m	>25	4	5	3
INFRA-RED	Sodium	ppm	ASTM D5185m		5	2	2
Soot %         %         *ASTM D7844         >4         0.4         0.4         0.3           Nitration         Abs/cm         *ASTM D7624         >20         9.2         8.9         8.5           Sulfation         Abs/.1mm         *ASTM D7415         >30         21.3         21.2         18.5           FLUID DEGRADATION         method         limit/base         current         history1         hist           Oxidation         Abs/.1mm         *ASTM D7414         >25         19.0         18.5         16.3	Potassium	ppm	ASTM D5185m	>20	4	2	<1
Nitration         Abs/cm         *ASTM D7624         >20         9.2         8.9         8.5           Sulfation         Abs/.1mm         *ASTM D7615         >30         21.3         21.2         18.5           FLUID DEGRADATION method limit/base current         history1         hist           Oxidation         Abs/.1mm         *ASTM D7414         >25         19.0         18.5         16.3	INFRA-RED		method	limit/base	current	history1	history2
Sulfation         Abs/.1mm         *ASTM D7415         >30         21.3         21.2         18.5           FLUID DEGRADATION method limit/base current history1         history1         hist           Oxidation         Abs/.1mm         *ASTM D7414         >25         19.0         18.5         16.3	Soot %	%	*ASTM D7844	>4	0.4	0.4	0.3
FLUID DEGRADATION method limit/base current history1 hist Oxidation Abs/.1mm *ASTM D7414 >25 19.0 18.5 16.3	Nitration	Abs/cm	*ASTM D7624	>20	9.2	8.9	8.5
Oxidation	Sulfation	Abs/.1mm	*ASTM D7415	>30	21.3	21.2	18.5
	FLUID DEGRAD	ATION	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 9.8 6.8 7.3 6.8	Oxidation	Abs/.1mm	*ASTM D7414	>25	19.0	18.5	16.3
2.00	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	6.8	7.3	6.8



# **OIL ANALYSIS REPORT**

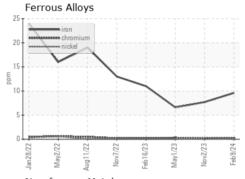


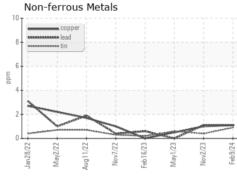


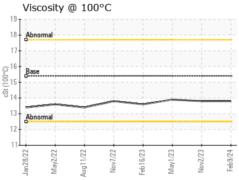
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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

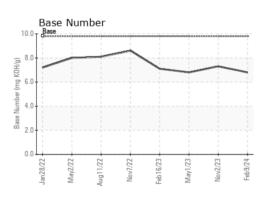
FLUID PROPE	RHES	method			history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.8	13.8	13.9

### **GRAPHS**













Laboratory Sample No.

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

Lab Number : 06089403 Unique Number : 10876848 Test Package : FLEET

: GFL0100399

**Tested** 

Received : 14 Feb 2024 : 15 Feb 2024 Diagnosed : 15 Feb 2024 - Wes Davis

GFL Environmental - 935 - Omro HC 250 Alder Avenue Omro, WI US 54963

Contact: Tim Kieffer tim.kieffer@gflenv.com T: (608)219-0288

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)