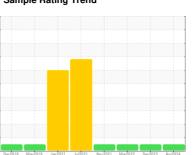


# **OIL ANALYSIS REPORT**

### Sample Rating Trend









Machine Id
9174
Component
Natural Gas Engine
Fluid
PETRO CANADA DURON GEO LD 15W40 (24 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

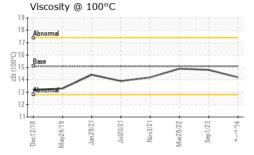
### **Fluid Condition**

The condition of the oil is acceptable for the time in service.

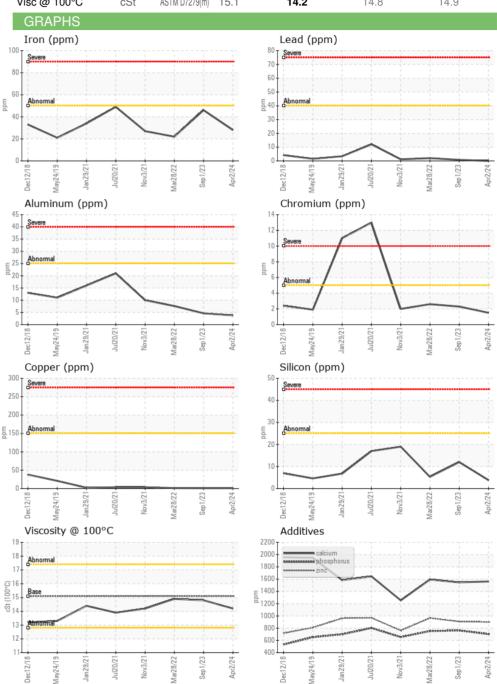
Sample Date	GEO LD 15W40 (2	24 LIN)	Dec2018 N	May2019 Jan2021 Jul20	21 Nov2021 Mar2022 Sep2023	Apr2024	
Client Info	SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Machine Age   hrs   Client Info   90563   0   14659	Sample Number		Client Info		GFL0094415	GFL0086773	GFL0048917
Oil Changed	Sample Date		Client Info		02 Apr 2024	01 Sep 2023	28 Mar 2022
Contained   Client Info   Changed   N/A   NORMAL   NORM	Machine Age	hrs	Client Info		90563	0	14659
NORMAL   NORMAL   NORMAL   NORMAL   CONTAMINATION   method   limit/base   current   history1   history2   history2	Oil Age	hrs	Client Info		90563	0	0
CONTAMINATION   method   limit/base   current   history1   history2	Oil Changed		Client Info		Changed	N/A	Changed
Water         WC Method         >0.1         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185(m)         >50         28         46         22           Chromium         ppm         ASTM D5185(m)         >5         2         2         3           Nickel         ppm         ASTM D5185(m)         >4         <1	Sample Status				NORMAL	NORMAL	NORMAL
VEAR METALS	CONTAMINAT	ION	method	limit/base	current	history1	history2
Chromium	Water		WC Method	>0.1	NEG	NEG	NEG
Chromium         ppm         ASTM D5185(m)         >5         2         2         2         3           Nickel         ppm         ASTM D5185(m)         >4         <1	WEAR METAL	S	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185(m)	>50	28	46	22
Titanium	Chromium	ppm	ASTM D5185(m)	>5	2	2	3
Silver	Nickel	ppm	ASTM D5185(m)	>4	<1	1	<1
Astrologists	Titanium	ppm	ASTM D5185(m)	>5	0	<1	0
Lead	Silver	ppm	ASTM D5185(m)	>3	0	0	0
Copper	Aluminum	ppm	ASTM D5185(m)	>25	4	5	8
Antimony	Lead	ppm	ASTM D5185(m)	>40	0	<1	2
Antimony	Copper	ppm	ASTM D5185(m)	>150	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)         50         7         8         7           Barium         ppm         ASTM D5185(m)         5         0         0         0           Molybdenum         ppm         ASTM D5185(m)         50         53         57         55           Manganese         ppm         ASTM D5185(m)         0         0         1         <1           Magnesium         ppm         ASTM D5185(m)         560         554         557         636           Calcium         ppm         ASTM D5185(m)         1510         1562         1547         1594           Phosphorus         ppm         ASTM D5185(m)         870         900         907         965           Sulfur         ppm         ASTM D5185(m)         2040         1963         1967 <th< td=""><td>Tin</td><td>ppm</td><td>ASTM D5185(m)</td><td>&gt;4</td><th>0</th><td>&lt;1</td><td>&lt;1</td></th<>	Tin	ppm	ASTM D5185(m)	>4	0	<1	<1
Beryllium	Antimony	ppm	ASTM D5185(m)		0	0	0
ADDITIVES	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)         50         53         57         55           Manganese         ppm         ASTM D5185(m)         0         0         1         <1           Magnesium         ppm         ASTM D5185(m)         560         554         557         636           Calcium         ppm         ASTM D5185(m)         1510         1562         1547         1594           Phosphorus         ppm         ASTM D5185(m)         780         703         762         752           Zinc         ppm         ASTM D5185(m)         870         900         907         965           Sulfur         ppm         ASTM D5185(m)         2040         1963         1967         2015           Lithium         ppm         ASTM D5185(m)         2040         1963         1967         2015           Lithium         ppm         ASTM D5185(m)         >25         4         12         5           Soliticon         ppm         ASTM D5185(m)         >25         4         12         5           Sodium         ppm         ASTM D5185(m)         >20         <1         1         <1           INFRA-RED         method <t< td=""><td>Boron</td><td>ppm</td><td>ASTM D5185(m)</td><td>50</td><th>7</th><td>8</td><td>7</td></t<>	Boron	ppm	ASTM D5185(m)	50	7	8	7
Manganese         ppm         ASTM D5185(m)         0         1         <1           Magnesium         ppm         ASTM D5185(m)         560         554         557         636           Calcium         ppm         ASTM D5185(m)         1510         1562         1547         1594           Phosphorus         ppm         ASTM D5185(m)         780         703         762         752           Zinc         ppm         ASTM D5185(m)         870         900         907         965           Sulfur         ppm         ASTM D5185(m)         2040         1963         1967         2015           Lithium         ppm         ASTM D5185(m)         2040         1963         1967         2015           Lithium         ppm         ASTM D5185(m)         25         4         1         <1	Barium	ppm	ASTM D5185(m)	5	0	0	0
Magnesium         ppm         ASTM D5185(m)         560         554         557         636           Calcium         ppm         ASTM D5185(m)         1510         1562         1547         1594           Phosphorus         ppm         ASTM D5185(m)         780         703         762         752           Zinc         ppm         ASTM D5185(m)         870         900         907         965           Sulfur         ppm         ASTM D5185(m)         2040         1963         1967         2015           Lithium         ppm         ASTM D5185(m)         2040         1963         1967         2015           Lithium         ppm         ASTM D5185(m)         21         <1         <1         <1           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >25         4         12         5           Sodium         ppm         ASTM D5185(m)         >20         <1         1         <1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %	Molybdenum	ppm	ASTM D5185(m)	50	53	57	55
Calcium         ppm         ASTM D5185(m)         1510         1562         1547         1594           Phosphorus         ppm         ASTM D5185(m)         780         703         762         752           Zinc         ppm         ASTM D5185(m)         870         900         907         965           Sulfur         ppm         ASTM D5185(m)         2040         1963         1967         2015           Lithium         ppm         ASTM D5185(m)         <1	Manganese	ppm	ASTM D5185(m)	0	0	1	<1
Phosphorus         ppm         ASTM D5185(m)         780         703         762         752           Zinc         ppm         ASTM D5185(m)         870         900         907         965           Sulfur         ppm         ASTM D5185(m)         2040         1963         1967         2015           Lithium         ppm         ASTM D5185(m)         <1	Magnesium	ppm	ASTM D5185(m)	560	554	557	636
Zinc	Calcium	ppm	ASTM D5185(m)	1510	1562	1547	1594
Sulfur         ppm         ASTM D5185(m)         2040         1963         1967         2015           Lithium         ppm         ASTM D5185(m)         2040         1963         1967         2015           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >25         4         12         5           Sodium         ppm         ASTM D5185(m)         5         6         8           Potassium         ppm         ASTM D5185(m)         >20         <1         1         <1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         ASTM D7844*         0         0         0           Nitration         Abs/cm         ASTM D7624*         >20         12.2         11.7         5.0           Sulfation         Abs/.1mm         ASTM D7415*         >30         24.5         25.0         15.6           FLUID DEGRADATION         method         limit/base         current         history1         history2	Phosphorus	ppm	ASTM D5185(m)	780	703	762	752
Lithium         ppm         ASTM D5185(m)         <1         <1         <1           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >25         4         12         5           Sodium         ppm         ASTM D5185(m)         5         6         8           Potassium         ppm         ASTM D5185(m)         >20         <1         1         <1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         ASTM D7844*         0         0         0           Nitration         Abs/cm         ASTM D7624*         >20         12.2         11.7         5.0           Sulfation         Abs/.1mm         ASTM D7415*         >30         24.5         25.0         15.6           FLUID DEGRADATION         method         limit/base         current         history1         history2	Zinc	ppm	ASTM D5185(m)	870	900	907	965
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >25         4         12         5           Sodium         ppm         ASTM D5185(m)         5         6         8           Potassium         ppm         ASTM D5185(m)         >20         <1	Sulfur	ppm	ASTM D5185(m)	2040	1963	1967	2015
Silicon         ppm         ASTM D5185(m)         >25         4         12         5           Sodium         ppm         ASTM D5185(m)         5         6         8           Potassium         ppm         ASTM D5185(m)         >20         <1         1         <1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         ASTM D7844*         0         0         0           Nitration         Abs/cm         ASTM D7624*         >20         12.2         11.7         5.0           Sulfation         Abs/.1mm         ASTM D7415*         >30         24.5         25.0         15.6           FLUID DEGRADATION method         limit/base         current         history1         history2	Lithium	ppm	ASTM D5185(m)		<1	<1	<1
Sodium         ppm         ASTM D5185(m)         5         6         8           Potassium         ppm         ASTM D5185(m)         >20         <1	CONTAMINAN	ITS	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*         0         0         0           Nitration         Abs/cm         ASTM D7624*         >20         12.2         11.7         5.0           Sulfation         Abs/.1mm         ASTM D7415*         >30         24.5         25.0         15.6           FLUID DEGRADATION method         limit/base         current         history1         history2	Silicon	ppm	ASTM D5185(m)	>25	4	12	5
Potassium         ppm         ASTM D5185(m)         >20         <1         1         <1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         ASTM D7844*         0         0         0           Nitration         Abs/cm         ASTM D7624*         >20         12.2         11.7         5.0           Sulfation         Abs/.1mm         ASTM D7415*         >30         24.5         25.0         15.6           FLUID DEGRADATION method         limit/base         current         history1         history2	Sodium	ppm	ASTM D5185(m)		5	6	8
Soot %         %         ASTM D7844*         0         0         0           Nitration         Abs/cm         ASTM D7624*         >20         12.2         11.7         5.0           Sulfation         Abs/.1mm         ASTM D7415*         >30         24.5         25.0         15.6           FLUID DEGRADATION         method         limit/base         current         history1         history2	Potassium	ppm	ASTM D5185(m)	>20	<1	1	<1
Nitration         Abs/cm         ASTM D7624*         >20         12.2         11.7         5.0           Sulfation         Abs/.1mm         ASTM D7615*         >30         24.5         25.0         15.6           FLUID DEGRADATION         method         limit/base         current         history1         history2	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm ASTM D7415* >30 24.5 25.0 15.6  FLUID DEGRADATION method limit/base current history1 history2	Soot %	%	ASTM D7844*		0	0	0
Sulfation Abs/.1mm ASTM D7415* >30 24.5 25.0 15.6  FLUID DEGRADATION method limit/base current history1 history2	Nitration	Abs/cm	ASTM D7624*	>20	12.2	11.7	5.0
	Sulfation		ASTM D7415*	>30	24.5	25.0	15.6
Oxidation Abs/.1mm ASTM D7414* >25 <b>19.4</b> 19.4 8.1	FLUID DEGRA	OITAC	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	ASTM D7414*	>25	19.4	19.4	8.1



# **OIL ANALYSIS REPORT**









CALA ISO 17025:2017 Accredited Laboratory

Laboratory Sample No.

: GFL0094415 Lab Number : 02626414 Unique Number : 5759546 Test Package : MOB 1

: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 Received **Tested** 

: 03 Apr 2024 : 03 Apr 2024 : 03 Apr 2024 - Wes Davis Diagnosed

GFL Environmental - 222 - Sandhill SANDHILL DISPOSAL & RECYCLING DIVIS, 19 COMMERCE ROAD ORANGEVILLE, ON

CA L9W 3X5 Contact: GLENN COOK gcook@gflenv.com T: (519)940-4167

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

Submitted By: Kim Thompson