

### **OIL ANALYSIS REPORT**

Sample Rating Trend

# NORMAL

Machine Id

## 949001-214234

Natural Gas Engine

Fluid PETRO CANADA DURON GEO LD 15W40 (--- 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.

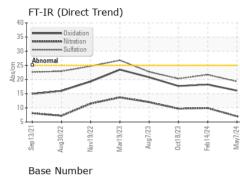
#### Fluid Condition

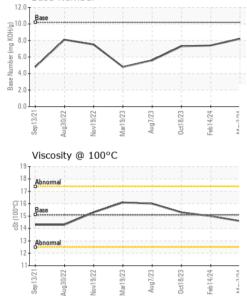
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Number     Client Info     OFL0106034     GFL0106128     GFL0108033       Sample Date     Client Info     07 May 2024     14 Feb 2024     18 Oct 2023       Machine Age     hrs     Client Info     600     876     600       Oil Age     Client Info     600     876     600       Oil Age     Client Info     Changed     Changed     Changed       Sample Status     Imt     Imt/Sss     Current     NoRMAL     NORMAL       CONTAMINATION     method     Imt/Sss     Current     NEG     NEG       WEAR     MECM     Mitofision     s-2     ct     -     -     -       Nickel     ppm     ASTM05150     s-2     ct     -	SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Machine Age     hrs     Client Info     13319     12798     0       Oil Age     hrs     Client Info     600     876     600       Oil Changed     Client Info     Changed     Changed     Changed       Sample Status     Imit/base     current     NoRMAL     NORMAL       CONTAMINATION     method     imit/base     current     history1     history2       Water     WC Method     >0.1     NEG     NEG     NEG       Wetar     Mothod     sith 05185m     >50     4     12     10       Chromium     ppm     ASTM 05185m     >2     <1     <1     0       Silver     ppm     ASTM 05185m     >3     0     0     0       Aurminum     ppm     ASTM 05185m     >30     <1     <1     0       Copper     ppm     ASTM 05185m     >30     <1     0     <1       Lead     ppm     ASTM 05185m     >5     1     0     <1       Copper     ppm	Sample Number		Client Info		GFL0106034	GFL0106128	GFL0078633
Machine AgehrsClient Info13319127980Oil AgehrsClient Info600876600Oil ChangedChangedChangedChangedChangedSample StatusnninibbasCurrentNORMALNORMALCONTAMINATIONmethodinnibbascurrenthistory1history2WaterWC Method>0.1NEGNEGNEGWEAR METALSmethodinnibbascurrenthistory1nistory2IronppmASTM DSI8m>2<	Sample Date		Client Info		07 May 2024	14 Feb 2024	18 Oct 2023
Oil Changed Sample StatusClient InfoChanged NORMALChanged NORMALChanged NORMALChanged NORMALChanged NORMALCONTAMINATIONmethodlimit/basecurrenthistory1history2WaterWC Method>0.1NEGNEGNEGWEAR METALSmethodlimit/basecurrenthistory1history2IronppmASTM D5185m>5041210ChromiumppmASTM D5185m>2<1<1<1NickelppmASTM D5185m>2<1<10ItaniumppmASTM D5185m>30000AluminumppmASTM D5185m>30<1<100CopperppmASTM D5185m>30<1000CopperppmASTM D5185m>3<1000VanadiumppmASTM D5185m<1000ADDITVESmethodlimit/basecurrenthistory1history2BoronppmASTM D5185m50525554ManganeseppmASTM D5185m50525554ManganeseppmASTM D5185m50574727628CalciumppmASTM D5185m50574727628CalciumppmASTM D5185m50574727628CalciumppmASTM D518	Machine Age	hrs	Client Info		13319	12798	0
Sample Status     NORMAL     NORMAL     NORMAL     NORMAL     NORMAL       CONTAMINATION     method     limit/base     current     history1     history2       Water     WC Method     >0.1     NEG     NEG     NEG       Wetar     WC Method     >0.1     NEG     NEG     NEG       Iron     ppm     ASTM D5185m     >50     4     12     10       Chromium     ppm     ASTM D5185m     >2     <1     <1     0       Nickel     ppm     ASTM D5185m     >3     0     0     0       Aluminum     ppm     ASTM D5185m     >3     0     0     0       Gopper     ppm     ASTM D5185m     >3     <1     0     0       Vanadium     ppm     ASTM D5185m     >35     <1     0     0       Vanadium     ppm     ASTM D5185m     <2     0     0     0       Vanadium     ppm     ASTM D5185m     <2     55     <5     5  B	Oil Age	hrs	Client Info		600	876	600
CONTAMINATION     method     limit/base     current     history1     history2       Water     WC Method     >0.1     NEG     NEG     NEG       Water     WC Method     >0.1     NEG     NEG     NEG       WEAR METALS     method     limit/base     current     history1     history2       Iron     ppm     ASTM D5165m     >50     4     12     10       Chromium     ppm     ASTM D5165m     >2     <1     <1     0       Nickel     ppm     ASTM D5165m     >3     0     0     0       Aluminum     ppm     ASTM D5165m     >3     0     0     0       Lead     ppm     ASTM D5165m     >3     <1     0     0       Cadmium     ppm     ASTM D5165m     >4     <1     0     0       Cadmium     ppm     ASTM D5165m     >5     <4     0     0       Cadmium     ppm     ASTM D5165m     5     2     0     0	Oil Changed		Client Info		Changed	Changed	Changed
Water     WC Method     >0.1     NEG     NEG     NEG       WEAR METALS     method     limit/base     current     history1     history2       Iron     ppm     ASTM D5185m     >50     4     12     10       Chromium     ppm     ASTM D5185m     >2     <1     <1     <1       Nickel     ppm     ASTM D5185m     >2     <1     <1     <1       Silver     ppm     ASTM D5185m     >3     0     0     0       Aluminum     ppm     ASTM D5185m     >3     0     0     <1       Lead     ppm     ASTM D5185m     >3     <1     0     <1       Copper     ppm     ASTM D5185m     >4     <1     0     0       Vanadium     ppm     ASTM D5185m     <4     1     0     0       Cadmium     ppm     ASTM D5185m     50     42     20     15       Barium     ppm     ASTM D5185m     50     52     55     54	Sample Status				NORMAL	NORMAL	NORMAL
WEAR METALS     method     limit/base     current     history1     history2       Iron     ppm     ASTM D5185m     >50     4     12     10       Chromium     ppm     ASTM D5185m     >4     <1     <1     0       Nickel     ppm     ASTM D5185m     >2     <1     <1     0       Titanium     ppm     ASTM D5185m     >3     0     0     0       Aluminum     ppm     ASTM D5185m     >3     0     0     <1       Lead     ppm     ASTM D5185m     >3     0     <1     0       Copper     ppm     ASTM D5185m     >3     <1     0     <1       Lead     ppm     ASTM D5185m     >3     <1     0     <1       Cadmium     ppm     ASTM D5185m     >4     <1     0     <1       Cadmium     ppm     ASTM D5185m     50     42     20     15       Barium     ppm     ASTM D5185m     50     52     55	CONTAMINAT	ION	method	limit/base	current	history1	history2
Iron     ppm     ASTM D5185m     >50     4     12     10       Chromium     ppm     ASTM D5185m     >4     <1     <1     <1       Nickel     ppm     ASTM D5185m     >2     <1     <1     0       Titanium     ppm     ASTM D5185m     >2     <1     <1     <1       Silver     ppm     ASTM D5185m     >3     0     0     0       Aluminum     ppm     ASTM D5185m     >3     <1     <1     0       Copper     ppm     ASTM D5185m     >30     <1     <1     0     0       Vanadium     ppm     ASTM D5185m     >35     <1     0     0     0       Cadmium     ppm     ASTM D5185m     >4     <1     0     0     0       ADDITVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185m     50     52     55     54       Manganese     ppm     ASTM D5185m	Water		WC Method	>0.1	NEG	NEG	NEG
Chromium     ppm     ASTM D5185m     >4     <1	WEAR METAL	S	method	limit/base	current	history1	history2
Nickel     ppm     ASTM D5185m     >2     <1	Iron	ppm	ASTM D5185m	>50	4	12	10
Titanium     ppm     ASTM D5185m     <1	Chromium	ppm	ASTM D5185m	>4	<1	<1	<1
Silver     ppm     ASTM D5185m     >3     0     0     0       Aluminum     ppm     ASTM D5185m     >9     2     2     1       Lead     ppm     ASTM D5185m     >30     <1	Nickel	ppm	ASTM D5185m	>2	<1	<1	0
Aluminum     ppm     ASTM D5185m     >9     2     2     1       Lead     ppm     ASTM D5185m     >30     <1     <1     0     <1       Copper     ppm     ASTM D5185m     >35     <1     0     <1       Tin     ppm     ASTM D5185m     >4     <1     0     0       Vanadium     ppm     ASTM D5185m     >4     <1     0     0       Cadmium     ppm     ASTM D5185m     <41     <1     0     0       Cadmium     ppm     ASTM D5185m     50     42     20     15       Boron     ppm     ASTM D5185m     50     52     55     54       Magnese     ppm     ASTM D5185m     50     52     55     54       Magnesium     ppm     ASTM D5185m     50     52     55     54       Magnesium     ppm     ASTM D5185m     50     574     727     628       Calcium     ppm     ASTM D5185m     740     86	Titanium	ppm	ASTM D5185m		<1	<1	<1
Lead     ppm     ASTM D5185m     >30     <1	Silver	ppm	ASTM D5185m	>3	0	0	0
Copper     ppm     ASTM D5185m     >35     <1	Aluminum	ppm	ASTM D5185m	>9	2	2	1
Tin     ppm     ASTM D5185m     >4     <1	Lead	ppm	ASTM D5185m	>30	<1	<1	0
Vanadium     ppm     ASTM D5185m     <1	Copper	ppm	ASTM D5185m	>35	<1	0	<1
Cadmium     ppm     ASTM D5185m     <1	Tin	ppm		>4	<1	0	0
ADDITIVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185m     50     42     20     15       Barium     ppm     ASTM D5185m     5     2     0     0       Molybdenum     ppm     ASTM D5185m     50     52     55     54       Manganese     ppm     ASTM D5185m     60     574     727     628       Calcium     ppm     ASTM D5185m     560     574     727     628       Calcium     ppm     ASTM D5185m     1510     1580     1781     1637       Phosphorus     ppm     ASTM D5185m     780     881     877     795       Zinc     ppm     ASTM D5185m     2040     2778     2575     2312       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >+100     6     5     4       Sodium     ppm     ASTM D5185m     >20 </th <th>Vanadium</th> <th>ppm</th> <th>ASTM D5185m</th> <th></th> <th></th> <th>&lt;1</th> <th>0</th>	Vanadium	ppm	ASTM D5185m			<1	0
Boron     ppm     ASTM D5185m     50     42     20     15       Barium     ppm     ASTM D5185m     5     2     0     0       Molybdenum     ppm     ASTM D5185m     50     52     55     54       Manganese     ppm     ASTM D5185m     0     <1     0     <1       Magnesium     ppm     ASTM D5185m     560     574     727     628       Calcium     ppm     ASTM D5185m     1510     1580     1781     1637       Phosphorus     ppm     ASTM D5185m     780     881     877     795       Zinc     ppm     ASTM D5185m     780     947     1116     1077       Sulfur     ppm     ASTM D5185m     2040     2778     2575     2312       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >20     2     0     0       Notasium     ppm     ASTM D5185m     >20<	Cadmium	ppm	ASTM D5185m		<1	0	0
Barium     ppm     ASTM D5185m     5     2     0     0       Molybdenum     ppm     ASTM D5185m     50     52     55     54       Manganese     ppm     ASTM D5185m     0     <1     0     <1       Magnesium     ppm     ASTM D5185m     560     574     727     628       Calcium     ppm     ASTM D5185m     560     574     727     628       Calcium     ppm     ASTM D5185m     1510     1580     1781     1637       Phosphorus     ppm     ASTM D5185m     780     881     877     795       Zinc     ppm     ASTM D5185m     870     947     1116     1077       Sulfur     ppm     ASTM D5185m     2040     2778     2575     2312       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >20     2     0     0       Sodium     ppm     ASTM D5185m	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum     ppm     ASTM D5185m     50     52     55     54       Manganese     ppm     ASTM D5185m     0     <1     0     <1       Magnesium     ppm     ASTM D5185m     560     574     727     628       Calcium     ppm     ASTM D5185m     1510     1580     1781     1637       Phosphorus     ppm     ASTM D5185m     780     881     877     795       Zinc     ppm     ASTM D5185m     870     947     1116     1077       Sulfur     ppm     ASTM D5185m     2040     2778     2575     2312       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >20     2     0     0       Sodium     ppm     ASTM D5185m     >20     2     0     0       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     'ASTM D7644     20<	Boron	ppm	ASTM D5185m		42		
Manganese     ppm     ASTM D5185m     0     <1		ppm	ASTM D5185m		2		
Magnesium     ppm     ASTM D5185m     560     574     727     628       Calcium     ppm     ASTM D5185m     1510     1580     1781     1637       Phosphorus     ppm     ASTM D5185m     780     881     877     795       Zinc     ppm     ASTM D5185m     870     947     1116     1077       Sulfur     ppm     ASTM D5185m     2040     2778     2575     2312       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >+100     6     5     4       Sodium     ppm     ASTM D5185m     >+20     2     0     0       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     0     0     0       Nitration     Abs/.mm     *ASTM D7624     >20     7.0     9.9     9.7       Sulfation     Abs/.lmm     *ASTM D7415     >30	,	ppm			-		
Calcium     ppm     ASTM D5185m     1510     1580     1781     1637       Phosphorus     ppm     ASTM D5185m     780     881     877     795       Zinc     ppm     ASTM D5185m     780     881     877     795       Zinc     ppm     ASTM D5185m     870     947     1116     1077       Sulfur     ppm     ASTM D5185m     2040     2778     2575     2312       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >+100     6     5     4       Sodium     ppm     ASTM D5185m     >20     2     0     0       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     0     0     0     0       Nitration     Abs/.mm<*ASTM D7415     >30     19.3     21.7     20.3       FLUID DEGRADATION     method     limit/base     curre	5	ppm	ASTM D5185m				
Phosphorus     ppm     ASTM D5185m     780     881     877     795       Zinc     ppm     ASTM D5185m     870     947     1116     1077       Sulfur     ppm     ASTM D5185m     2040     2778     2575     2312       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >+100     6     5     4       Sodium     ppm     ASTM D5185m     >+20     2     0     0       Potassium     ppm     ASTM D5185m     >20     2     0     0       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     0     0     0       Nitration     Abs/cm     *ASTM D7624     >20     7.0     9.9     9.7       Sulfation     Abs/.tmm     *ASTM D7415     >30     19.3     21.7     20.3       FLUID DEGRADATION     method     limit/base     curre	0				-		
Zinc     ppm     ASTM D5185m     870     947     1116     1077       Sulfur     ppm     ASTM D5185m     2040     2778     2575     2312       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >+100     6     5     4       Sodium     ppm     ASTM D5185m     >+100     6     5     9       Potassium     ppm     ASTM D5185m     >20     2     0     0       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7624     >20     7.0     9.9     9.7       Sulfation     Abs/cm     *ASTM D7624     >20     7.0     9.9     9.7       Sulfation     Abs/tim     *ASTM D7415     >30     19.3     21.7     20.3       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D741		ppm					
Sulfur     ppm     ASTM D5185m     2040     2778     2575     2312       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >+100     6     5     4       Sodium     ppm     ASTM D5185m     >+100     6     5     9       Potassium     ppm     ASTM D5185m     >20     2     0     0       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     0     0     0     0       Nitration     Abs/cm     *ASTM D7624     >20     7.0     9.9     9.7       Sulfation     Abs/rim     *ASTM D7415     >30     19.3     21.7     20.3       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     16.1     18.2     17.7		ppm					
CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>+100654SodiumppmASTM D5185m<159PotassiumppmASTM D5185m>20200INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D78440000NitrationAbs/cm*ASTM D7624>207.09.99.7SulfationAbs/timm*ASTM D7415>3019.321.720.3FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/.1mm*ASTM D7414>2516.118.217.7		ppm			-		
Silicon     ppm     ASTM D5185m     >+100     6     5     4       Sodium     ppm     ASTM D5185m     <10			ASTM D5185m	2040	2778	2575	2312
Sodium     ppm     ASTM D5185m     <1		TS	method	limit/base	current		history2
Potassium     ppm     ASTM D5185m     >20     2     0     0       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     0     0     0       Nitration     Abs/cm     *ASTM D7624     >20     7.0     9.9     9.7       Sulfation     Abs/.1mm     *ASTM D7415     >30     19.3     21.7     20.3       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     16.1     18.2     17.7	Silicon	ppm	ASTM D5185m	>+100	6		4
INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     0     0     0       Nitration     Abs/cm     *ASTM D7624     >20     7.0     9.9     9.7       Sulfation     Abs/.tmm     *ASTM D7415     >30     19.3     21.7     20.3       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.tmm     *ASTM D7414     >25     16.1     18.2     17.7	Sodium	ppm			<1	5	9
Soot %     %     *ASTM D7844     0     0     0       Nitration     Abs/cm     *ASTM D7624     >20     7.0     9.9     9.7       Sulfation     Abs/.1mm     *ASTM D7415     >30     19.3     21.7     20.3       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     16.1     18.2     17.7	Potassium	ppm	ASTM D5185m	>20	2	0	0
Nitration     Abs/cm     *ASTM D7624     >20     7.0     9.9     9.7       Sulfation     Abs/.tmm     *ASTM D7415     >30     19.3     21.7     20.3       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.tmm     *ASTM D7414     >25     16.1     18.2     17.7	INFRA-RED		method	limit/base	current	history1	history2
Sulfation     Abs/.1mm     *ASTM D7415     >30     19.3     21.7     20.3       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     16.1     18.2     17.7	Soot %	%	*ASTM D7844		0	0	0
FLUID DEGRADATION method limit/base current history1 history2   Oxidation Abs/.1mm *ASTM D7414 >25 16.1 18.2 17.7	Nitration	Abs/cm	*ASTM D7624	>20	7.0	9.9	9.7
Oxidation     Abs/.1mm     *ASTM D7414     >25     16.1     18.2     17.7	Sulfation	Abs/.1mm	*ASTM D7415	>30	19.3	21.7	20.3
	FLUID DEGRA	DATION	method	limit/base	current	history1	history2
Base Number (BN)     mg KOH/g     ASTM D2896     10.2     8.2     7.4     7.3	Oxidation	Abs/.1mm	*ASTM D7414	>25	16.1	18.2	17.7
	Base Number (BN)	mg KOH/g	ASTM D2896	10.2	8.2	7.4	7.3

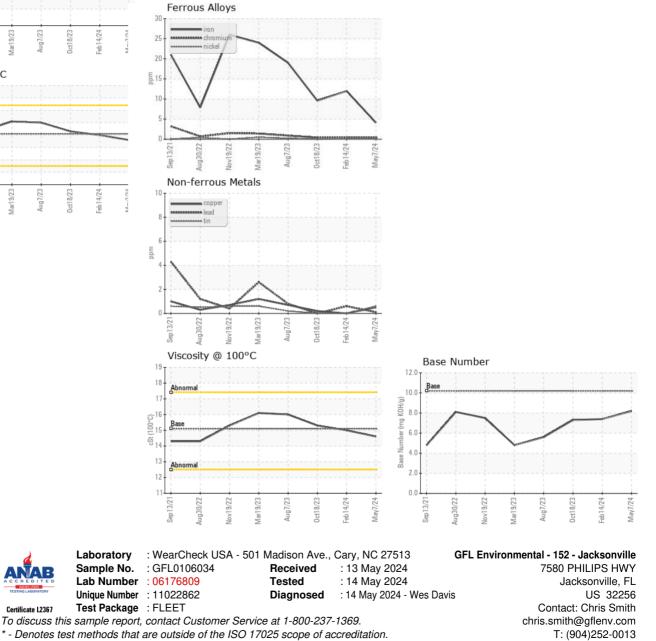


## **OIL ANALYSIS REPORT**





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
Emulsified Water	scalar	*Visual	>0.1	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPE	RTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.1	14.6	15.0	15.3
GRAPHS						



\* - 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)

Certificate 12367

Submitted By: WITH iNDIANA GFL - Chris Smith

E: