

## **OIL ANALYSIS REPORT**

Sample Rating Trend



#### Area (TJX4156) Machine Id 934056

Component 1 Natural Gas Engine

Fluid PETRO CANADA DURON GEO LD 15W40 (--- GAL)

### DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor.

#### Wear

Metal levels are typical for a new component breaking in.

#### Contamination

There is no indication of any contamination in the oil.

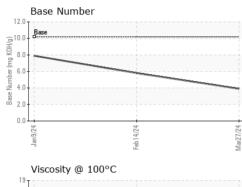
#### Fluid Condition

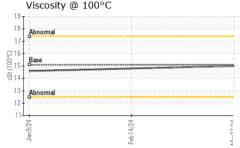
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

· · · ·		04	2024	Feb2024 Mar20		
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0114408	GFL0103944	GFL0103958
Sample Date		Client Info		27 Mar 2024	14 Feb 2024	09 Jan 2024
Machine Age	mls	Client Info		25769	1407	1174
Oil Age	mls	Client Info		0	1407	1174
Oil Changed		Client Info		Changed	N/A	Changed
Sample Status				NORMAL	NORMAL	ABNORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Water		WC Method	>0.1	NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>50	16	11	<b>6</b> 4
Chromium	ppm	ASTM D5185m	>4	<1	1	3
Nickel	ppm	ASTM D5185m	>2	0	<1	<1
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>9	9	8	4
Lead	ppm	ASTM D5185m	>30	0	<1	12
Copper	ppm	ASTM D5185m	>35	2	2	2
Tin	ppm	ASTM D5185m	>4	<1	1	2
Vanadium	ppm	ASTM D5185m		0	<1	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	ourropt	history1	history2
ADDITIVES		methoa	mmubase	current	nistory i	TIIStOLYZ
Boron	ppm	ASTM D5185m	50	5	15	10
	ppm ppm					
Boron		ASTM D5185m	50	5	15	10
Boron Barium	ppm	ASTM D5185m ASTM D5185m	50 5 50	5 0	15 0	10 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50	5 0 55	15 0 49	10 0 68
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0	5 0 55 <1	15 0 49 <1	10 0 68 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560	5 0 55 <1 593	15 0 49 <1 552	10 0 68 <1 996
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560 1510	5 0 55 <1 593 1885	15 0 49 <1 552 1536	10 0 68 <1 996 1278
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780	5 0 55 <1 593 1885 763	15 0 49 <1 552 1536 730	10 0 68 <1 996 1278 1148
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780 870	5 0 55 <1 593 1885 763 1006	15 0 49 <1 552 1536 730 918	10 0 68 <1 996 1278 1148 1385
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 50 00 560 1510 780 870 2040	5 0 55 <1 593 1885 763 1006 2971	15 0 49 <1 552 1536 730 918 2306	10 0 68 <1 996 1278 1148 1385 2936
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 50 00 560 1510 780 870 2040	5 0 55 <1 593 1885 763 1006 2971 current	15 0 49 <1 552 1536 730 918 2306 history1	10 0 68 <1 996 1278 1148 1385 2936 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 50 00 560 1510 780 870 2040	5 0 55 <1 593 1885 763 1006 2971 current 5	15 0 49 <1 552 1536 730 918 2306 history1 7	10 0 68 <1 996 1278 1148 1385 2936 history2 7
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780 870 2040 <b>limit/base</b> >+100	5 0 55 <1 593 1885 763 1006 2971 current 5 7	15 0 49 <1 552 1536 730 918 2306 history1 7 5	10 0 68 <1 996 1278 1148 1385 2936 history2 7 13
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	50 50 00 560 1510 780 870 2040 <b>limit/base</b> >+100	5 0 55 <1 593 1885 763 1006 2971 current 5 7 39	15 0 49 <1 552 1536 730 918 2306 history1 7 5 27	10 0 68 <1 996 1278 1148 1385 2936 history2 7 13 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	50 50 0 560 1510 780 870 2040 <b>Imit/base</b> >+100 >20 <b>Imit/base</b>	5 0 55 <1 593 1885 763 1006 2971 current 5 7 39 current	15 0 49 <1 552 1536 730 918 2306 history1 7 5 27 27 history1	10 0 68 <1 996 1278 1148 1385 2936 history2 7 13 2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	50 50 0 560 1510 780 870 2040 <b>Imit/base</b> >+100 >20 <b>Imit/base</b>	5 0 55 <1 593 1885 763 1006 2971 <i>current</i> 5 7 39 <i>current</i> 0	15 0 49 <1 552 1536 730 918 2306 history1 7 5 27 5 27 history1 0.3	10 0 68 <1 996 1278 1148 1385 2936 history2 7 13 2 history2 2.3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	50 50 00 560 1510 780 870 2040 imit/base >+100 20 imit/base	5 0 55 <1 593 1885 763 1006 2971 <i>current</i> 5 7 39 <i>current</i> 0 11.7	15 0 49 <1 552 1536 730 918 2306 history1 7 5 27 5 27 history1 0.3 7.0	10 0 68 <1 996 1278 1148 1385 2936 history2 7 13 2 7 13 2 history2 2.3 13.1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	50 50 560 1510 780 870 2040 <b>Imit/base</b> >20 <b>Imit/base</b> >20 <b>Imit/base</b>	5 0 55 <1 593 1885 763 1006 2971 <b>current</b> 5 7 39 <b>current</b> 0 11.7 23.6	15 0 49 <1 552 1536 730 918 2306 history1 7 5 27 history1 0.3 7.0 17.7	10 0 68 <1 996 1278 1148 1385 2936 history2 7 13 2 7 13 2 <u>history2</u> 2.3 13.1 27.0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624	50 50 560 1510 780 870 2040 >timit/base >+100 220 imit/base >20 >30	5 0 55 <1 593 1885 763 1006 2971 <i>current</i> 5 7 39 <i>current</i> 0 11.7 23.6	15 0 49 <1 552 1536 730 918 2306 history1 7 5 2306 history1 0.3 7.0 17.7 history1	10 0 68 <1 996 1278 1148 1385 2936 history2 7 13 2 7 13 2 history2 2.3 13.1 27.0 history2



# **OIL ANALYSIS REPORT**





	VISUAL		method				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
4/24 -	Appearance	scalar	*Visual	NORML	NORML		NORML
Feb14/24 Mar27/24	Odor	scalar	*Visual	NORML	NORML		NORML
	Emulsified Water	scalar	*Visual	>0.1	NEG	NEG	NEG
	Free Water	scalar	*Visual		NEG	NEG	NEG
	FLUID PROPE	ERTIES	method	limit/base	currer	nt history1	history2
	Visc @ 100°C	cSt	ASTM D445	15.1	15.0	14.8	14.6
	GRAPHS						
	Ferrous Alloys						
	70 iron						
Feb 14/24 	60 - chromium						
Pe Fe	50	1					
	E 30						
	<sup>30</sup>						
	20-						
	10-						
	0						
	Jan 9/24	Feb 14/24		Mar27/24			
	Jan	Feb1		Mar2			
	Non-ferrous Meta	als					
	<sup>12</sup>	als					
		als					
	12 10 terresterrest lead	als					
	10 10 8	als					
	12 10 terresterrest lead	als					
	10 10 8	als					
	12 10 8 6 4	als					
	10 10 8	als					
	12 10 10 10 10 10 10 10 10 10 10 10 10 10						
	12 10 8 6 4	1424		a21/24			
	12 10 8 4 2 0 +CCpter Copper Isad	Feb14/24		Mar21/24			
	Viscosity @ 100°	Feb14/24		12.0	Base Nur	nber	
	Viscosity @ 100°	Feb14/24		12.0	Base	nber	
	Viscosity @ 100°	Feb14/24		12.0	Base	nber	
	Viscosity @ 100°	Feb14/24		12.0	Base	nber	
	Viscosity @ 100°	Feb14/24		12.0	Base	nber	
	12 10 10 10 10 10 10 10 10 10 10	Feb14/24		12.0	Base	nber	
	Viscosity @ 100°	Feb14/24		12.0 (0) (0) (0) (0) (0) (0) (0) (0) (0) (0	Base	nber	
	Viscosity @ 100°	Feb14/24		12.0 (0)HOX 8.0 (0)HOX	Base	nber	
	12 10 10 10 10 10 10 10 10 10 10	C Feb14/24		12.0 (10.0 (0)(H(0))(H(0)) (0)(H(0))(H(0))(H(0))(H(0))(H(0))(H(0))(H(0))(H(0	Base		
	Viscosity @ 100°	C Feb14/24		12.0 (10.0 (0)(H(0))(H(0)) (0)(H(0))(H(0))(H(0))(H(0))(H(0))(H(0))(H(0))(H(0	Base		
	Viscosity @ 100° bhoomal bhoomal bhoomal bhoomal bhoomal	Feb14/24		12.0 (0,0) (10.0)))))))))))))))))))))))))))))))))))	Base b	Feb14/24	
Laboratory	Viscosity @ 100° bhommal Control of the second se	C +72/F1(99-1 +72/F1(99-1 +72/F1(99-1) +72/F		(ZZEW (0)(HOX BU) (0)(HOX BU)	Base b	427F1rpg L Environmental - 865	- East Mount Haulin
Sample No.	Viscosity @ 100° Viscosity @ 100° bhommal Control of the second secon	C +52FF1qay +52FF1qay 01 Madisoo Recei	ived : 01	12.0 (0)HOX BU HOX BU H	Base b	427F1rpg L Environmental - 865	Int Houston Road
Sample No. Lab Number	Viscosity @ 100° Viscosity @ 100° WearCheck USA - 50 : WearCheck USA - 50 : GFL0114408 r : 06135487	C +72/F1(99-) C +72/F1(99-) D1 Madiso Recei Teste	ived : 01 ed : 02	12.0 (0)HOX Bul HOX BU	Base boot	427F1rpg L Environmental - 865	<b>- East Mount Haulin</b> Int Houston Road Houston, TX
Sample No. Lab Number Unique Number	Viscosity @ 100° Viscosity @ 100° bhommal bhommal Construction Cons	C +72/F1(99-) C +72/F1(99-) D1 Madiso Recei Teste	ived : 01 ed : 02	12.0 (0)HOX BU HOX BU H	Base boot	L Environmental - 865 7213 East Mou	- East Mount Haulin Int Houston Roa Houston, TX US 7705
Sample No. Lab Number	Viscosity @ 100° Viscosity @ 100° bhommal WearCheck USA - 50 : GFL0114408 r : 06135487 r : 10954952 e : FLEET	C P27F1 99- C D1 Madiso Recei Teste Diagr	ived : 01 ed : 02 nosed : 02	12.0 (0)HOX Bul HOX BU	Base boot	L Environmental - 865 7213 East Mou Contact: TECHNI	<b>- East Mount Haulin</b> Int Houston Roa Houston, T US 7705

Submitted By: TECHNICIAN ACCOUNT