

OIL ANALYSIS REPORT

Sample Rating Trend





Component

Natural Gas Engine

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.

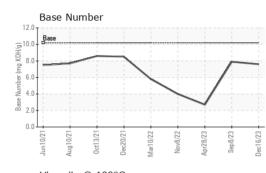
Fluid Condition

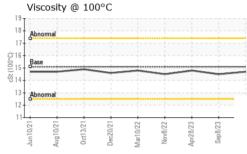
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Emy		Jun2021 Aug	2021 Oct2021 Dec2021	Mar2022 Nov2022 Apr2023 Sep20		
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0106959	GFL0089713	GFL0077342
Sample Date		Client Info		16 Dec 2023	08 Sep 2023	28 Apr 2023
Machine Age	hrs	Client Info		14125	13464	12545
Oil Age	hrs	Client Info		661	919	1095
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
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	0	4	14
Chromium	ppm	ASTM D5185m	>4	<1	0	1
Nickel	ppm	ASTM D5185m	>2	<1	0	0
Titanium	ppm	ASTM D5185m		0	0	<1
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>9	2	<1	0
Lead	ppm	ASTM D5185m	>30	0	0	2
Copper	ppm	ASTM D5185m	>35	<1	<1	3
Tin	ppm	ASTM D5185m	>4	0	<1	<1
Vanadium	ppm	ASTM D5185m		<1	<1	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 21	history1 27	history2 2
	ppm ppm		50			
Boron Barium		ASTM D5185m	50	21	27	2
Boron	ppm	ASTM D5185m ASTM D5185m	50 5 50	21 0	27 0	2
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50	21 0 46	27 0 51	2 0 54
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0	21 0 46 <1	27 0 51 <1	2 0 54 <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	21 0 46 <1 580	27 0 51 <1 594	2 0 54 <1 539
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 780	21 0 46 <1 580 1430	27 0 51 <1 594 1645	2 0 54 <1 539 1579
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780	21 0 46 <1 580 1430 794	27 0 51 <1 594 1645 790	2 0 54 <1 539 1579 692
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	21 0 46 <1 580 1430 794 976	27 0 51 <1 594 1645 790 974	2 0 54 <1 539 1579 692 994
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 ASTM D5185m	50 5 50 0 560 1510 780 870 2040	21 0 46 <1 580 1430 794 976 2482	27 0 51 <1 594 1645 790 974 2966	2 0 54 <1 539 1579 692 994 2283
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 5 50 0 560 1510 780 870 2040	21 0 46 <1 580 1430 794 976 2482 current	27 0 51 <1 594 1645 790 974 2966 history1	2 0 54 <1 539 1579 692 994 2283 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 method	50 5 50 0 560 1510 780 870 2040	21 0 46 <1 580 1430 794 976 2482 current 2	27 0 51 <1 594 1645 790 974 2966 history1 3	2 0 54 <1 539 1579 692 994 2283 history2 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	50 5 50 0 560 1510 780 870 2040 limit/base >+100	21 0 46 <1 580 1430 794 976 2482 current 2 2 2 2 0	27 0 51 <1 594 1645 790 974 2966 history1 3 5	2 0 54 <1 539 1579 692 994 2283 history2 4 7
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780 870 2040 limit/base >+100	21 0 46 <1 580 1430 794 976 2482 current 2 2 2 2 0	27 0 51 <1 594 1645 790 974 2966 history1 3 5 <1	2 0 54 <1 539 1579 692 994 2283 history2 4 7 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780 870 2040 limit/base >20 limit/base	21 0 46 <1 580 1430 794 976 2482 <u>current</u> 2 2 2 0 <u>current</u>	27 0 51 <1 594 1645 790 974 2966 history1 3 5 <1 history1	2 0 54 <1 539 1579 692 994 2283 history2 4 7 2 8
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 5 50 0 560 1510 780 870 2040 2040 2040 >+100 >20 Limit/base	21 0 46 <1 580 1430 794 976 2482 <u>current</u> 2 2 0 <u>current</u> 0	27 0 51 <1 594 1645 790 974 2966 history1 3 5 <1 4 history1 0.1	2 0 54 <1 539 1579 692 994 2283 history2 4 7 2 2 history2 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780 870 2040 2040 2040 >+100 >20 Limit/base	21 0 46 <1 580 1430 794 976 2482 <u>current</u> 2 2 2 0 <u>current</u> 0 8.4 18.4	27 0 51 <1 594 1645 790 974 2966 history1 3 5 <1 5 <1 history1 0.1 8.1	2 0 54 <1 539 1579 692 994 2283 history2 4 7 2 8 history2 0 11.0
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 TS ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	50 50 50 150 1510 780 870 2040 imit/base >+100 220 imit/base 220	21 0 46 <1 580 1430 794 976 2482 <u>current</u> 2 2 2 0 <u>current</u> 0 8.4 18.4	27 0 51 <1 594 1645 790 974 2966 history1 3 5 <1 3 5 <1 0.1 8.1 18.2	2 0 54 <1 539 1579 692 994 2283 history2 4 7 2 2 history2 0 11.0 21.9
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 TS ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624	50 5 50 0 560 1510 780 870 2040 2040 2040 2040 2040 2040 20 20 20 20 20 20 20 20 20 20 20 20 20	21 0 46 <1 580 1430 794 976 2482 <i>current</i> 2 2 2 2 0 <i>current</i> 0 8.4 18.4	27 0 51 <1 594 1645 790 974 2966 history1 3 5 <1 5 <1 0.1 8.1 18.2 history1	2 0 54 <1 539 1579 692 994 2283 history2 4 7 2 8 history2 0 11.0 21.9 history2

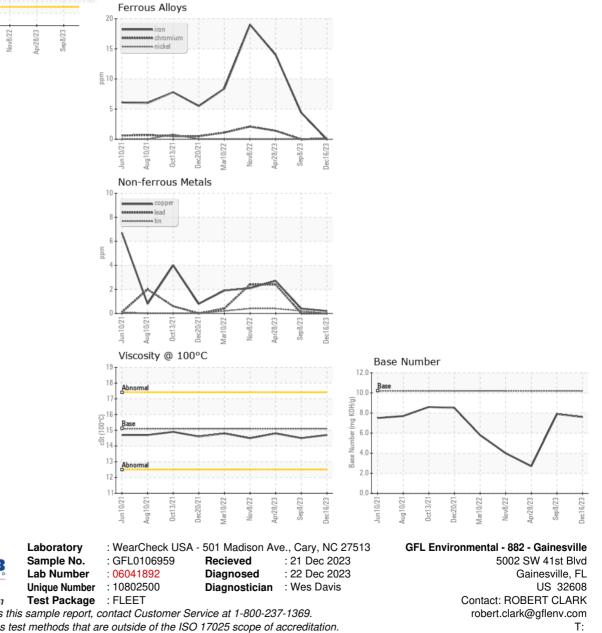


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VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*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	14.7	14.5	14.8
GRAPHS						





Certificate L2367 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)

Submitted By: STEPHEN WEIL

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