

OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL

Area (E031HW) 2824

Diesel Engine

Fluid PETRO CANADA DURON SHP 15W40 (40 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

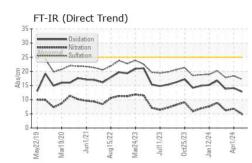
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

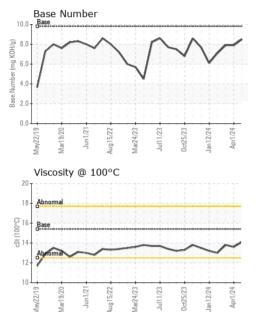
SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0098894	GFL0099019	GFL0098875
Sample Date		Client Info		09 Apr 2024	01 Apr 2024	12 Mar 2024
Machine Age	hrs	Client Info		9074	9032	8776
Oil Age	hrs	Client Info		8776	8776	8776
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron		ASTM D5185m	>165	5	11	8
Chromium	ppm	ASTM D5185m	>5	5 <1	1	0
Nickel	ppm	ASTM D5185m		1	1	0
Titanium	ppm ppm	ASTM D5185m		۱ <1	<1	<1
Silver	ppm	ASTM D5185m	>2	<1	<1	0
Aluminum	ppm	ASTM D5185m	>20	1	1	2
Lead	ppm	ASTM D5185m		1	1	<1
Copper	ppm	ASTM D5185m	>90	1	2	<1
Tin	ppm	ASTM D5185m	>5	1	1	0
Vanadium	ppm	ASTM D5185m	20	<1	<1	<1
Vanadiani	ppin			~ !		
Cadmium	nnm	ASTM D5185m		1	1	0
	ppm	ASTM D5185m	limit/base	1 current	1 history1	0 history2
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	0	current 0	history1 0	history2 0
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	0	current 0 0	history1 0 0	history2 0 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	current 0 0 55	history1 0 0 55	history2 0 0 56
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	current 0 0 55 1	history1 0 0 55 1	history2 0 0 56 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	current 0 0 555 1 847	history1 0 55 1 851	history2 0 0 56 <1 955
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	Current 0 0 55 1 847 1051	history1 0 55 1 851 1061	history2 0 0 56 <1 955 1111
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	Current 0 55 1 847 1051 1051	history1 0 55 1 851 1061 1063	history2 0 56 <1 955 1111 1026
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270	Current 0 55 1 847 1051 1051 1129	history1 0 55 1 851 1061 1063 1159	history2 0 0 56 <1 955 1111 1026 1274
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	Current 0 55 1 847 1051 1051 1129 3450	history1 0 55 1 851 1061 1063 1159 3388	history2 0 0 56 <1 955 1111 1026 1274 3817
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	Current 0 55 1 847 1051 1051 1051 1129 3450 Current	history1 0 55 1 851 1061 1063 1159 3388 history1	history2 0 56 <1 955 11111 1026 1274 3817 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	current 0 0 55 1 847 1051 1051 1129 3450 current 4	history1 0 0 55 1 851 1061 1063 1159 3388 history1 4	history2 0 0 56 <1 955 1111 1026 1274 3817 history2 3
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >35	Current 0 0 55 1 847 1051 1051 1129 3450 current 4 2	history1 0 0 55 1 851 1061 1063 1159 3388 history1 4 4 4	history2 0 0 56 <1 955 1111 1026 1274 3817 history2 3 3
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >35	current 0 0 55 1 847 1051 1051 1129 3450 current 4 2 2	history1 0 0 55 1 851 1061 1063 1159 3388 history1 4 4 4 4 4 4 4 4 4	history2 0 0 56 <1 955 1111 1026 1274 3817 history2 3 3 3 3 3 3
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 Imit/base >35	0 0 55 1 847 1051 1051 1129 3450 current 4 2 2 2 current	history1 0 0 55 1 851 1061 1063 1159 3388 history1 4 4 4 4 4 history1	history2 0 0 56 <1 955 1111 1026 1274 3817 history2 3 3 3 3 3 3 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >35 >20 limit/base >7.5	current 0 0 55 1 847 1051 1051 1129 3450 current 4 2 2 current 0.1	history1 0 0 55 1 851 1061 1063 1159 3388 history1 4 4 4 4 0.2	history2 0 0 56 <1 955 1111 1026 1274 3817 history2 3 3 3 3 3 0 0.1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >35 >20 imit/base >7.5 >20	Current 0 0 55 1 847 1051 1051 1129 3450 current 4 2 2 current 0.1 4.9	history1 0 0 55 1 851 1061 1063 1159 3388 history1 4 4 4 0.2 6.8	history2 0 0 56 <1 955 1111 1026 1274 3817 history2 3 3 3 3 3 0.1 6.2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >35 >20 limit/base >7.5	current 0 0 55 1 847 1051 1051 1129 3450 current 4 2 2 current 0.1	history1 0 0 55 1 851 1061 1063 1159 3388 history1 4 4 4 4 0.2	history2 0 0 56 <1 955 1111 1026 1274 3817 history2 3 3 3 3 3 0 0.1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >35 >20 imit/base >7.5 >20	Current 0 0 55 1 847 1051 1051 1129 3450 current 4 2 2 current 0.1 4.9	history1 0 0 55 1 851 1061 1063 1159 3388 history1 4 4 4 0.2 6.8	history2 0 0 56 <1 955 1111 1026 1274 3817 history2 3 3 3 3 3 0.1 6.2
ADDITIVES 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	method ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 Imit/base >35 -20 Imit/base >7.5 >20 >30	0 0 55 1 847 1051 1051 1129 3450 current 4 2 2 current 0.1 4.9 17.2	history1 0 0 55 1 851 1061 1063 1159 3388 history1 4 4 4 0.2 6.8 18.4	history2 0 0 56 <1 955 1111 1026 1274 3817 history2 3 3 3 3 1 0.1 6.2 17.8

Submitted By: GFL084,GFL842,GFL844,GFL846 - ROBERT THIBAULT Page 1 of 2



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	>0.2	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	15.4	14.1	13.6	13.8
GRAPHS						

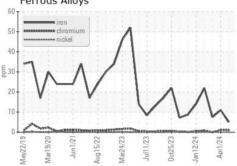
Ferrous Alloys

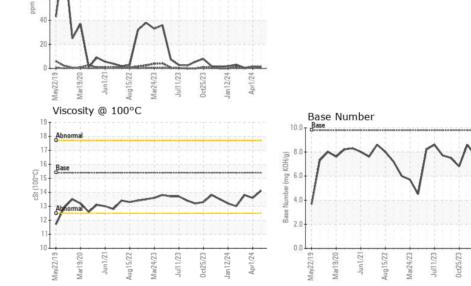
Non-ferrous Metals

lead

100

80 60





Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 084 - Clarksville Sample No. : GFL0098894 Received : 18 Apr 2024 699 Jack Miller Boulevard Lab Number : 06152736 Tested : 18 Apr 2024 Clarksville, TN Unique Number : 10982814 Diagnosed : 18 Apr 2024 - Wes Davis US 37042 Test Package : FLEET Contact: ROBERT THIBAULT Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. robert.thibault@gflenv.com * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: (931)552-7276 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

F: (931)572-9674

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