

OIL ANALYSIS REPORT

Sample Rating Trend



Area (YA139888) 3720 Component Diesel Engine

Fluid

PETRO CANADA DURON SHP 15W40 (46 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.

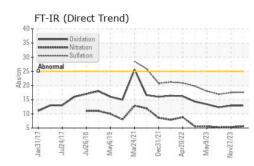
Fluid Condition

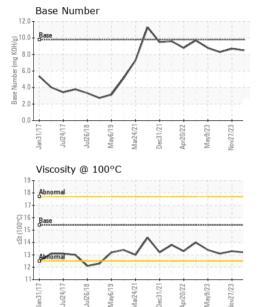
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0111975	GFL0098794	GFL0092507
Sample Date		Client Info		21 Feb 2024	27 Nov 2023	17 Aug 2023
Machine Age	hrs	Client Info		68534	68534	0
Oil Age	hrs	Client Info		68534	68534	423
Oil Changed		Client Info		N/A	N/A	Not Changd
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	ppm	ASTM D5185m	>75	4	1	6
Chromium	ppm	ASTM D5185m	>5	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	0	0	0
Titanium	ppm	ASTM D5185m		0	0	<1
Silver	ppm	ASTM D5185m	>2	0	0	<1
Aluminum	ppm	ASTM D5185m	>15	2	1	2
Lead	ppm	ASTM D5185m	>25	0	0	<1
Copper	ppm	ASTM D5185m	>100	<1	0	<1
Tin	ppm	ASTM D5185m	>4	0	<1	<1
Vanadium	ppm	ASTM D5185m		0	0	<1
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 5	history1 16	history2 2
	ppm ppm					
Boron Barium	ppm	ASTM D5185m	0	5	16	2
Boron		ASTM D5185m ASTM D5185m	0	5 8	16 0	2 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	5 8 56	16 0 57	2 0 59
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	5 8 56 0	16 0 57 <1	2 0 59 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	5 8 56 0 796	16 0 57 <1 868	2 0 59 <1 943
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	5 8 56 0 796 995	16 0 57 <1 868 1012	2 0 59 <1 943 1168
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	0 0 60 0 1010 1070 1150	5 8 56 0 796 995 929	16 0 57 <1 868 1012 999	2 0 59 <1 943 1168 1012
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	0 0 60 0 1010 1070 1150 1270	5 8 56 0 796 995 929 1086	16 0 57 <1 868 1012 999 1177	2 0 59 <1 943 1168 1012 1233
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	0 0 60 0 1010 1070 1150 1270 2060	5 8 56 0 796 995 929 1086 3008	16 0 57 <1 868 1012 999 1177 2953	2 0 59 <1 943 1168 1012 1233 3676
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	0 0 60 1010 1070 1150 1270 2060	5 8 56 0 796 995 929 1086 3008 current	16 0 57 <1 868 1012 999 1177 2953 history1	2 0 59 <1 943 1168 1012 1233 3676 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	0 0 60 0 1010 1070 1150 1270 2060 limit/base	5 8 56 0 796 995 929 1086 3008 current 3	16 0 57 <1 868 1012 999 1177 2953 history1 3	2 0 59 <1 943 1168 1012 1233 3676 history2 3
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	0 0 60 0 1010 1070 1150 1270 2060 limit/base	5 8 56 0 796 995 929 1086 3008 <u>current</u> 3 0	16 0 57 <1 868 1012 999 1177 2953 history1 3 2	2 0 59 <1 943 1168 1012 1233 3676 history2 3 3 3
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	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20	5 8 56 0 796 995 929 1086 3008 <u>current</u> 3 0 2	16 0 57 <1 868 1012 999 1177 2953 history1 3 2 2 <1	2 0 59 <1 943 1168 1012 1233 3676 history2 3 3 3 1
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	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 Limit/base >20	5 8 56 0 796 995 929 1086 3008 <i>current</i> 3 0 2	16 0 57 <1 868 1012 999 1177 2953 history1 3 2 <1 4 history1	2 0 59 <1 943 1168 1012 1233 3676 history2 3 3 1 history2
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 ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 Limit/base >20	5 8 56 0 796 995 929 1086 3008 <u>current</u> 3 0 2 2 <u>current</u> 0.1	16 0 57 <1 868 1012 999 1177 2953 history1 3 2 <1 3 2 <1 0.1	2 0 59 <1 943 1168 1012 1233 3676 history2 3 3 1 history2 0.1
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 ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 220 220 20 1imit/base >20	5 8 56 0 796 995 929 1086 3008 <i>current</i> 3 0 2 <i>current</i> 0.1 5.6	16 0 57 <1 868 1012 999 1177 2953 history1 3 2 2 <1 3 2 <1 history1 0.1 5.3	2 0 59 <1 943 1168 1012 1233 3676 history2 3 3 3 1 history2 0.1 5.2
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 D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 <u>imit/base</u> >6 >20 20	5 8 56 0 796 995 929 1086 3008 <u>current</u> 3 0 2 2 <u>current</u> 0.1 5.6 17.6	16 0 57 <1 868 1012 999 1177 2953 history1 3 2 <1 3 2 <1 0.1 5.3 17.5	2 0 59 <1 943 1168 1012 1233 3676 history2 3 3 1 history2 0.1 5.2 16.9



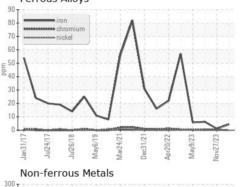
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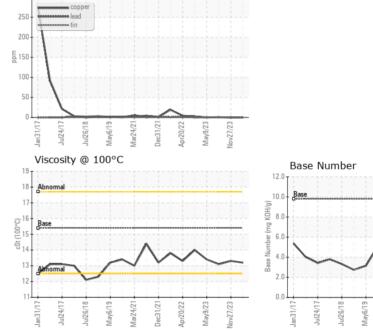


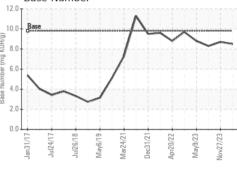


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	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	13.2	13.3	13.1
GRAPHS						

Ferrous Alloys







Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 19DR - Deep Run/TriEast Sample No. : GFL0111975 Received : 26 Feb 2024 2287 Leslie R Stroud Road Kinston, NC Lab Number : 06100016 Tested : 27 Feb 2024 US 28504-9477 Unique Number : 10898246 Diagnosed : 27 Feb 2024 - Wes Davis Test Package : FLEET Contact: Spencer Liggon Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. spencer.liggon@gflenv.com * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: (800)207-6618 F:

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

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Submitted By: TIMOTHY WATSON

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