

## **OIL ANALYSIS REPORT**

Sample Rating Trend



Machine Id 4250 Component Diesel E Fluid PETRO

425080-43 Component Diesel Engine Fluid PETRO CANADA DURON SHP 15W40 (600 GAL)

SAMPLE INFORMATION method

### 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.

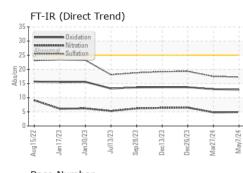
#### Fluid Condition

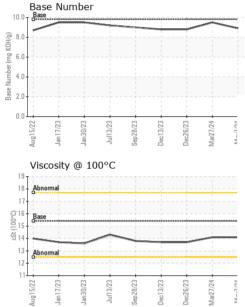
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORM		method	limit/base	current	nistory i	nistory2
Sample Number		Client Info		GFL0118729	GFL0110543	GFL0100262
Sample Date		Client Info		07 May 2024	27 Mar 2024	26 Dec 2023
Machine Age	hrs	Client Info		32362	32312	32312
Oil Age	hrs	Client Info		200	400	600
Oil Changed		Client Info		Not Changd	Not Changd	Changed
Sample Status				NORMAL	NORMAL	ABNORMAL
				Normize		
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	>120	15	28	87
Chromium	ppm	ASTM D5185m	>20	<1	20	2
Nickel		ASTM D5185m	>5	0	<1	<1
	ppm			ں <1	1	<1
Titanium Silver	ppm	ASTM D5185m			0	0
	ppm	ASTM D5185m	>2	<1		
Aluminum	ppm	ASTM D5185m		5	6	0 10
Lead	ppm	ASTM D5185m	>40	<1	<1	2
Copper	ppm	ASTM D5185m		4	2	7
Tin	ppm	ASTM D5185m	>15	<1	<1	<1
Vanadium	ppm	ASTM D5185m		0	<1	<1
Cadmium	ppm	ASTM D5185m		0	<1	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 2	history1 1	history2 4
	ppm ppm	ASTM D5185m			· · · · ·	
Boron		ASTM D5185m	0	2	1	4
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	2 0	1 0	4
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	2 0 54	1 0 61	4 0 58
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	2 0 54 1	1 0 61 <1	4 0 58 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	2 0 54 1 922	1 0 61 <1 980	4 0 58 1 930
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	2 0 54 1 922 1008	1 0 61 <1 980 1094	4 0 58 1 930 963
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	2 0 54 1 922 1008 1029	1 0 61 <1 980 1094 1028	4 0 58 1 930 963 1043
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	2 0 54 1 922 1008 1029 1190	1 0 61 <1 980 1094 1028 1232	4 0 58 1 930 963 1043 1244
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 00 00 1010 1070 1150 1270 2060	2 0 54 1 922 1008 1029 1190 3460 current	1 0 61 <1 980 1094 1028 1232 3210 history1	4 0 58 1 930 963 1043 1244 3071 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 <b>method</b>	0 00 00 1010 1070 1150 1270 2060	2 0 54 1 922 1008 1029 1190 3460 current 13	1 0 61 <1 980 1094 1028 1232 3210 history1 17	4 0 58 1 930 963 1043 1244 3071 history2 ▲ 28
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 kimit/base	2 0 54 1 922 1008 1029 1190 3460 current	1 0 61 <1 980 1094 1028 1232 3210 history1	4 0 58 1 930 963 1043 1244 3071 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25	2 0 54 1 922 1008 1029 1190 3460 current 13 2 <1	1 0 61 <1 980 1094 1028 1232 3210 history1 17 1 2	4 0 58 1 930 963 1043 1244 3071 history2 ▲ 28 3 3 3
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 ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20	2 0 54 1 922 1008 1029 1190 3460 current 13 2 <1 current	1 0 61 <1 980 1094 1028 1232 3210 history1 17 1 2 history1	4 0 58 1 930 963 1043 1244 3071 ► history2 28 3 3 3 3
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	2 0 54 1 922 1008 1029 1190 3460 <i>current</i> 13 2 <1 2 <1 <i>current</i>	1 0 61 <1 980 1094 1028 1232 3210 history1 17 1 2 history1 0.4	4 0 58 1 930 963 1043 1244 3071 history2 ▲ 28 3 3 3 history2 0.9
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm <b>TS</b> ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i> >4 >20	2 0 54 1 922 1008 1029 1190 3460 <i>current</i> 13 2 <1 2 <1 <i>current</i> 0.4 4.9	1 0 61 <1 980 1094 1028 1232 3210 history1 17 17 17 1 2 history1 0.4 4.8	4 0 58 1 930 963 1043 1244 3071 ► 28 3 3 3 ► history2 ► 28 3 3 ► 0.9 ● 6.5
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 >25 >20 Limit/base >20	2 0 54 1 922 1008 1029 1190 3460 <i>current</i> 13 2 <1 2 <1 <i>current</i>	1 0 61 <1 980 1094 1028 1232 3210 history1 17 1 2 history1 0.4	4 0 58 1 930 963 1043 1244 3071 history2 ▲ 28 3 3 3 history2 0.9
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 <i>limit/base</i> >25 >20 <i>limit/base</i> >4 >20	2 0 54 1 922 1008 1029 1190 3460 <i>current</i> 13 2 <1 2 <1 <i>current</i> 0.4 4.9	1 0 61 <1 980 1094 1028 1232 3210 history1 17 17 1 2 history1 0.4 4.8	4 0 58 1 930 963 1043 1244 3071 ► 28 3 3 3 ► history2 ► 28 3 3 ► 0.9 ● 6.5
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 <b>imit/base</b> >25 <b>imit/base</b> >4 >20	2 0 54 1 922 1008 1029 1190 3460 <u>current</u> 13 2 <1 2 <1 0.4 4.9 17.3	1 0 61 <1 980 1094 1028 1232 3210 history1 17 1 2 history1 0.4 4.8 17.5	4 0 58 1 930 963 1043 1244 3071 ► history2 28 3 3 3 3 ► history2 0.9 6.5 19.3
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 TS ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 /////////////////////////////////	2 0 54 1 922 1008 1029 1190 3460 <i>current</i> 13 2 <1 <i>current</i> 0.4 4.9 17.3	1 0 61 <1 980 1094 1028 1232 3210 history1 17 1 2 history1 0.4 4.8 17.5 history1	4 0 58 1 930 963 1043 1244 3071 ► 28 3 3 7 E 8 3 3 3 • history2 0.9 6.5 19.3



# **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	>0.2	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	14.1	13.7
GRAPHS						

iKAPH Ferrous Alloys 140 120 100 80 60 40 20 Π. Aug15/22 + Jan 17/23 Jul13/23 an30/23 Sen 28/23 Dec13/23 Dec26/23 Aar27/24 10/LiveW Non-ferrous Metals 10 lead bpm Aug15/22 lar 13/73 Pc26/23 ar27/24 Aav7/24 an 30/7 an 1 Viscosity @ 100°C Base Number 19 10.0 18 17 8. (mg KOH/g) ()-16 ()-00 () 15 () 14 6 | umber 4 ( Base 13 Abnorma 12 11 0.0 May7/24 -Aug15/22 Aug15/22 ep28/23 Dec13/23 Dec26/23 Mar27/24 Jan 17/23 Sen 28/23 Dec26/23 Mar27/24 Jan 30/23 an30/73 ul13/23 Dec13/23 Jan 1 : WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0118729 Received : 13 May 2024

Laboratory GFL Environmental - 166 - Phenix City Sample No. 18 Old Brickyard Rd Lab Number : 06176706 Tested : 14 May 2024 Phenix City, AL Unique Number : 11022759 Diagnosed : 14 May 2024 - Wes Davis US 36869 Test Package : FLEET Contact: DEAN PEACE JR Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. dean.peace@gflenv.com \* - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: F:

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

Mav7/24