

## **OIL ANALYSIS REPORT**

Sample Rating Trend



# Area 020 Machine Id 813002

Diesel Engine PETRO CANADA DURON SHP 15W40 (38)

SAMPLE INFORMATION method limit/base

## 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.

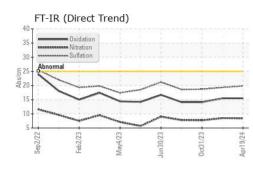
## Fluid Condition

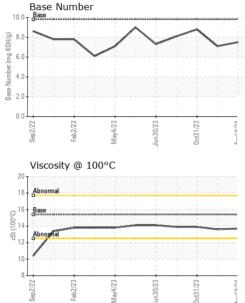
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

		methou	IIIIII/Dase	current	TIISTOLA	THSTOLA
Sample Number		Client Info		GFL0117871	GFL0103808	GFL0076959
Sample Date		Client Info		19 Apr 2024	22 Jan 2024	31 Oct 2023
Machine Age	hrs	Client Info		4177	3827	3033
Oil Age	hrs	Client Info		350	794	3033
Oil Changed		Client Info		Not Changd	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
			11 1. 11			
CONTAMINATI	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	12	14	14
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel		ASTM D5185m	>5	1	2	3
Titanium	ppm ppm	ASTM D5185m		0	<1	0
Silver		ASTM D5185m	>2	0	0	<1
Aluminum	ppm	ASTM D5185m	>20	2	<1	1
	ppm	ASTM D5185m	>20	0		<1
Lead	ppm		>40	0	<1 2	2
Copper Tin	ppm	ASTM D5185m			2	<1
	ppm		>15	1		
Vanadium	ppm	ASTM D5185m		0	<1	<1
Cadmium	ppm	ASTM D5185m		0	0	<1
ADDITIVES						
ADDITIVE5		method	limit/base	current	history1	history2
Boron	ppm	Method ASTM D5185m	limit/base	current 6	history1 3	history2 2
	ppm ppm					
Boron		ASTM D5185m	0	6	3	2
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	6 0	3 0	2 4
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	6 0 61	3 0 59	2 4 56
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	6 0 61 <1	3 0 59 <1	2 4 56 <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	6 0 61 <1 940	3 0 59 <1 890	2 4 56 <1 831
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	6 0 61 <1 940 1140	3 0 59 <1 890 1111	2 4 56 <1 831 995
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	6 0 61 <1 940 1140 1041	3 0 59 <1 890 1111 968	2 4 56 <1 831 995 774
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	6 0 61 <1 940 1140 1041 1270	3 0 59 <1 890 1111 968 1181	2 4 56 <1 831 995 774 1118
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	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	6 0 61 <1 940 1140 1041 1270 3291	3 0 59 <1 890 1111 968 1181 2608	2 4 56 <1 831 995 774 1118 2626
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	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 1010 1070 1150 1270 2060	6 0 61 <1 940 1140 1041 1270 3291 current 4	3 0 59 <1 890 1111 968 1181 2608 history1	2 4 56 <1 831 995 774 1118 2626 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	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	0 0 60 1010 1070 1150 1270 2060	6 0 61 <1 940 1140 1041 1270 3291 current	3 0 59 <1 890 1111 968 1181 2608 history1 3	2 4 56 <1 831 995 774 1118 2626 history2 4
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 <b>limit/base</b> >25	6 0 61 <1 940 1140 1041 1270 3291 current 4 3 1	3 0 59 <1 890 1111 968 1181 2608 history1 3 4 1	2 4 56 <1 831 995 774 1118 2626 history2 4 2 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	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	6 0 61 <1 940 1140 1041 1270 3291 current 4 3 1 1	3 0 59 <1 890 1111 968 1181 2608 history1 3 4 1 1 history1	2 4 56 <1 831 995 774 1118 2626 history2 4 2 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 ppm <b>TS</b> ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >20	6 0 61 <1 940 1140 1041 1270 3291 current 4 3 1 current 0.6	3 0 59 <1 890 1111 968 1181 2608 history1 3 4 1 1 history1 0.6	2 4 56 <1 831 995 774 1118 2626 history2 4 2 2 history2 0.6
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 TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 imit/base >20	6 0 61 <1 940 1140 1041 1270 3291 current 4 3 1 current 0.6 8.4	3 0 59 <1 890 1111 968 1181 2608 history1 3 4 1 1 history1 0.6 8.5	2 4 56 <1 831 995 774 1118 2626 history2 4 2 2 history2 0.6 7.7
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 t ppm ppm	ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >20	6 0 61 <1 940 1140 1041 1270 3291 current 4 3 1 current 0.6	3 0 59 <1 890 1111 968 1181 2608 history1 3 4 1 1 history1 0.6	2 4 56 <1 831 995 774 1118 2626 history2 4 2 2 history2 0.6
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 t ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 imit/base >20	6 0 61 <1 940 1140 1041 1270 3291 <i>current</i> 4 3 1 <i>current</i> 0.6 8.4	3 0 59 <1 890 1111 968 1181 2608 history1 3 4 1 1 history1 0.6 8.5	2 4 56 <1 831 995 774 1118 2626 history2 4 2 2 history2 0.6 7.7
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 t ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 25 20 220 20 20 20 20 20 20 20 20 20 20 20	6 0 61 <1 940 1140 1041 1270 3291 current 4 3 1 current 0.6 8.4 19.8	3 0 59 <1 890 1111 968 1181 2608 history1 3 4 1 1 history1 0.6 8.5 19.3	2 4 56 <1 831 995 774 1118 2626 history2 4 2 2 history2 0.6 7.7 18.7
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 ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	0 0 0 1010 1070 1150 1270 2060 2060 225 220 220 220 220 20 20 20 20 20 20 20 20	6 0 61 <1 940 1140 1041 1270 3291 <i>current</i> 4 3 1 <i>current</i> 0.6 8.4 19.8 <i>current</i>	3 0 59 <1 890 1111 968 1181 2608 history1 3 4 1 1 history1 0.6 8.5 19.3 history1	2 4 56 <1 831 995 774 1118 2626 history2 4 2 2 history2 0.6 7.7 18.7 history2



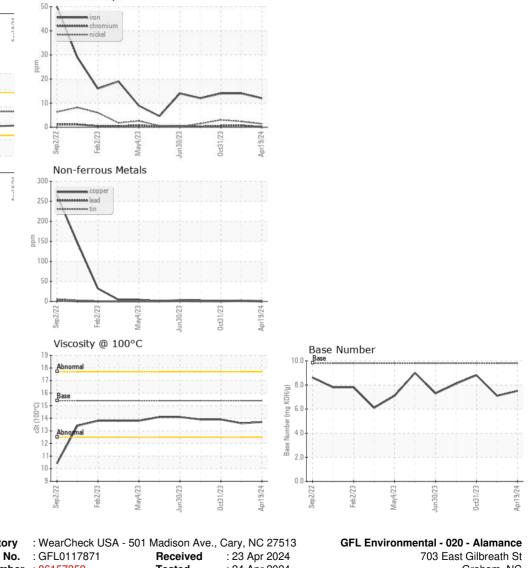
# **OIL ANALYSIS REPORT**





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	13.7	13.6	13.9
GRAPHS						

Ferrous Alloys



Laboratory Sample No. Lab Number : 06157359 Tested : 24 Apr 2024 Graham, NC Unique Number : 10992782 Diagnosed : 24 Apr 2024 - Wes Davis US 27253 Test Package : FLEET Contact: JEREMY SHORES Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. jeremy.shores@gflenv.com T: (336)668-3712 \* - 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) F: (336)229-0526

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Submitted By: JEREMY SHORES

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