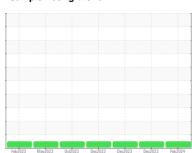


# **OIL ANALYSIS REPORT**

#### Sample Rating Trend







Machine Id **426149 - SW4628** 

Component

Diesel Engine

PETRO CANADA DURON SHP 15W40 (--- 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

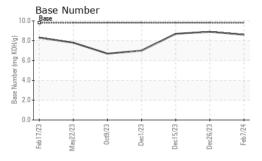
#### **Fluid Condition**

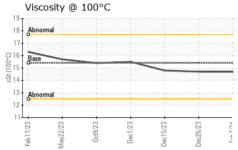
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0109276	GFL0093557	GFL0093592
Sample Date		Client Info		07 Feb 2024	26 Dec 2023	15 Dec 2023
Machine Age	hrs	Client Info		4631	4575	4556
Oil Age	hrs	Client Info		56	343	329
Oil Changed		Client Info		Not Changd	Changed	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<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	>80	15	7	4
Chromium	ppm	ASTM D5185m	>5	1	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	0	<1
Titanium	ppm	ASTM D5185m		24	23	20
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m		9	2	2
Lead	ppm		>30	0	0	0
Copper	ppm	ASTM D5185m	>150	2	2	1
Tin	ppm	ASTM D5185m		 <1	0	<1
Vanadium	ppm	ASTM D5185m		<1	0	<1
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVE O						
ADDITIVES		method				history2
Boron	ppm	method ASTM D5185m	limit/base	current 39	history1 38	history2 38
	ppm	ASTM D5185m				
Boron Barium	ppm	ASTM D5185m	0	39	38	38
Boron	ppm ppm	ASTM D5185m ASTM D5185m	0 0 60	39 0	38	38
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	39 0 40	38 0 41	38 0 38
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	39 0 40 <1	38 0 41 0	38 0 38 <1
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	39 0 40 <1 661	38 0 41 0 640	38 0 38 <1 673
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	39 0 40 <1 661 1467	38 0 41 0 640 1388	38 0 38 <1 673 1350
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	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	39 0 40 <1 661 1467 1047	38 0 41 0 640 1388 958	38 0 38 <1 673 1350 994
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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270	39 0 40 <1 661 1467 1047	38 0 41 0 640 1388 958 1175	38 0 38 <1 673 1350 994 1252
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	0 0 60 0 1010 1070 1150 1270 2060	39 0 40 <1 661 1467 1047 1260 3357	38 0 41 0 640 1388 958 1175 3455	38 0 38 <1 673 1350 994 1252 3352
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	39 0 40 <1 661 1467 1047 1260 3357 current	38 0 41 0 640 1388 958 1175 3455 history1	38 0 38 <1 673 1350 994 1252 3352 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	39 0 40 <1 661 1467 1047 1260 3357 current	38 0 41 0 640 1388 958 1175 3455 history1	38 0 38 <1 673 1350 994 1252 3352 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base	39 0 40 <1 661 1467 1047 1260 3357 current 10 1	38 0 41 0 640 1388 958 1175 3455 history1 4	38 0 38 <1 673 1350 994 1252 3352 history2 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >20	39 0 40 <1 661 1467 1047 1260 3357 current 10 1	38 0 41 0 640 1388 958 1175 3455 history1 4 0 3	38 0 38 <1 673 1350 994 1252 3352 history2 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 ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >20	39 0 40 <1 661 1467 1047 1260 3357 current 10 1 2	38 0 41 0 640 1388 958 1175 3455 history1 4 0 3	38 0 38 <1 673 1350 994 1252 3352 history2 3 <1 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm	ASTM D5185m  Method  *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 >20 	39 0 40 <1 661 1467 1047 1260 3357 current 10 1 2 current 0.3	38 0 41 0 640 1388 958 1175 3455 history1 4 0 3 history1 0.3	38 0 38 <1 673 1350 994 1252 3352 history2 3 <1 3 history2 0.3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm	ASTM D5185m  Method  *ASTM D5185m ASTM D5185m  Method  *ASTM D7844  *ASTM D7624  *ASTM D76145	0 0 60 0 1010 1150 1270 2060 limit/base >20 >20 limit/base	39 0 40 <1 661 1467 1047 1260 3357 current 10 1 2 current 0.3 6.0	38 0 41 0 640 1388 958 1175 3455 history1 4 0 3 history1 0.3 5.7	38 0 38 <1 673 1350 994 1252 3352 history2 3 <1 3 history2 0.3 5.5
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE	ppm	ASTM D5185m  METHOD  ASTM D5185m  METHOD  *ASTM D7844  *ASTM D7624  *ASTM D7415  METHOD	0 0 0 0 1010 1070 1150 1270 2060 limit/base >20 >20 limit/base >3 >20 >3	39 0 40 <1 661 1467 1047 1260 3357 current 10 1 2 current 0.3 6.0 18.8 current	38 0 41 0 640 1388 958 1175 3455 history1 4 0 3 history1 0.3 5.7 18.7	38 0 38 <1 673 1350 994 1252 3352 history2 3 <1 3 history2 0.3 5.5 18.6 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm	ASTM D5185m  Method  *ASTM D5185m ASTM D5185m  Method  *ASTM D7844  *ASTM D7624  *ASTM D76145	0 0 0 1010 1070 1150 1270 2060 limit/base >20 >20   limit/base >3   >20   >30   limit/base	39 0 40 <1 661 1467 1047 1260 3357 current 10 1 2 current 0.3 6.0 18.8	38 0 41 0 640 1388 958 1175 3455 history1 4 0 3 history1 0.3 5.7 18.7	38 0 38 <1 673 1350 994 1252 3352 history2 3 <1 3 history2 0.3 5.5 18.6



# **OIL ANALYSIS REPORT**



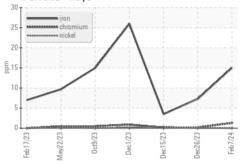


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
<b>Emulsified Water</b>	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

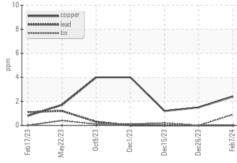
FLUID PROPI	ERTIES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.7	14.7	14.8

### **GRAPHS**

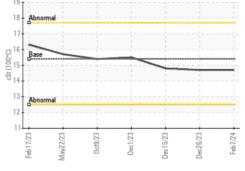
# Ferrous Alloys

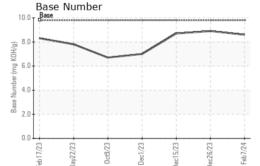
















Laboratory Sample No.

Test Package : FLEET

: GFL0109276 Lab Number : 06084261 Unique Number : 10871706

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 08 Feb 2024 **Tested** : 09 Feb 2024

Diagnosed : 12 Feb 2024 - Don Baldridge

GFL Environmental - 891 - Oklahoma City Hauling

1001 South Rockwell Oklahoma City, OK US 73128 Contact: Andy Smith

andrew.smith@gflenv.com T: (405)306-1651

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)