

## **OIL ANALYSIS REPORT**

Sample Rating Trend





Machine Id **4669M** Component **Diesel Engine** Fluid

### 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.

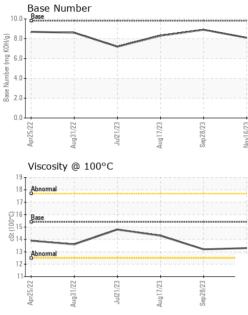
#### Fluid Condition

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

SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0059229	GFL0084984	GFL0084867
Sample Date		Client Info		16 Nov 2023	28 Sep 2023	17 Aug 2023
Machine Age	mls	Client Info		112511	109287	106654
Oil Age	mls	Client Info		108397	107806	1481
Oil Changed		Client Info		Changed	N/A	N/A
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	7	3	5
Chromium	ppm	ASTM D5185m	>5	<1	0	<1
Nickel	ppm	ASTM D5185m	>2	0	<1	0
Titanium	ppm	ASTM D5185m		<1	0	<1
Silver	ppm	ASTM D5185m	>3	0	<1	0
Aluminum	ppm	ASTM D5185m	>30	4	2	0
Lead	ppm	ASTM D5185m	>30	<1	1	0
Copper	ppm	ASTM D5185m	>150	11	<1	<1
Tin	ppm	ASTM D5185m	>5	0	<1	0
Vanadium	ppm	ASTM D5185m		0	0	<1
C a alvas is una		AOTH DELOF				0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES	ppm	method	limit/base	0 current	0 history1	0 history2
	ppm ppm		limit/base	-	-	
ADDITIVES		method	0	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	current 3	history1 4	history2 2
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	0 0 60	current 3 0	history1 4 0	history2 2 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	current 3 0 55	history1 4 0 56	history2 2 0 60
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	current 3 0 55 <1	history1 4 0 56 <1	history2 2 0 60 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	current 3 0 55 <1 930	history1 4 0 56 <1 910	history2 2 0 60 <1 979
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	current     3     0     55     <1     930     1053	history1 4 0 56 <1 910 1029	history2 2 0 60 <1 979 1126
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 3 0 55 <1 930 1053 989	history1 4 0 56 <1 910 1029 1040	history2 2 0 60 <1 979 1126 1031
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	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	current     3     0     55     <1     930     1053     989     1200	history1 4 0 56 <1 910 1029 1040 1234	history2     2     0     60     <1     979     1126     1031     1252
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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	Current 3 0 55 <1 930 1053 989 1200 2937	history1 4 0 56 <1 910 1029 1040 1234 3081	history2     2     0     60     <1     979     1126     1031     1252     3628
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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	current     3     0     555     <1     930     1053     989     1200     2937     current	history1   4   0   56   <1   910   1029   1040   1234   3081   history1	history2   2   0   60   <1   979   1126   1031   1252   3628   history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method     ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	current     3     0     555     <1     930     1053     989     1200     2937     current     6	history1     4     0     56     <1     910     1029     1040     1234     3081     history1     5	history2     2     0     60     <1     979     1126     1031     1252     3628     history2     3
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method     ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 kimit/base >20	current     3     0     55     <1     930     1053     989     1200     2937     current     6     4	history1     4     0     56     <1     910     1029     1040     1234     3081     history1     5     2	history2   2   0   60   <1   979   1126   1031   1252   3628   history2   3   5
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method     ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>limit/base</b> >20	current     3     0     55     <1     930     1053     989     1200     2937     current     6     4     5	history1   4   0   56   <1   910   1029   1040   1234   3081   history1   5   2   2	history2   2   0   60   <1   979   1126   1031   1252   3628   history2   3   5   <1
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 ppm	method     ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 220 220	current     3     0     55     <1     930     1053     989     1200     2937     current     6     4     5     current	history1   4   0   56   <1   910   1029   1040   1234   3081   history1   5   2   2   history1	history2   2   0   60   <1   979   1126   1031   1252   3628   history2   3   5   <1   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 ppm	method     ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >20 20 20	current     3     0     55     <1     930     1053     989     1200     2937     current     6     4     5     current     0.2	history1   4   0   56   <1   910   1029   1040   1234   3081   history1   5   2   history1   0.2	history2   2   0   60   <1   979   1126   1031   1252   3628   history2   3   5   <1   history2   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     ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 2060 200 200 200 200 200 200	current     3     0     55     <1     930     1053     989     1200     2937     current     6     4     5     current     0.2     5.3	history1     4     0     56     <1     910     1029     1040     1234     3081     history1     5     2     history1     0.2     5.7	history2   2   0   60   <1   979   1126   1031   1252   3628   history2   3   5   <1   history2   0.1   7.9
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 2060 200 200 200 320 320 33 200 230	current     3     0     55     <1     930     1053     989     1200     2937     current     6     4     5     current     0.2     5.3     18.5	history1   4   0   56   <1   910   1029   1040   1234   3081   history1   5   2   history1   0.2   5.7   17.6	history2   2   0   60   <1   979   1126   1031   1252   3628   history2   3   5   <1   history2   0.1   7.9   19.2



# **OIL ANALYSIS REPORT**



	VISUAL		method	limit/base	current	history1	history2
	White Metal Yellow Metal Precipitate Silt Debris Sand/Dirt Appearance Odor Emulsified Water Free Water	scalar scalar scalar scalar scalar scalar scalar scalar scalar scalar	*Visual *Visual *Visual *Visual *Visual *Visual *Visual *Visual *Visual	NONE NONE NONE NONE NONE NORML NORML >0.2	NONE NONE NONE NONE NONE NORML NORML NEG NEG	NONE NONE NONE NONE NONE NORML NORML NEG NEG	NONE NONE NONE NONE NONE NORML NORML NEG NEG
	FLUID PROPE		method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445	15.4	13.3	13.2	14.3
Sep 28/23	12 10 E 8 6			/			
	Viscosity @ 100°C	IS ES EZULI Day	Sep28/23	EZIGIJANN 10.0 (0)(HO)() (0)(H	Base Numbe	Jul21/23	

: 22 Nov 2023

: 23 Nov 2023



GFL Environmental - 410 - Michigan West 39000 Van Born Rd Wayne, MI US 48184 Contact: Belal Dgheish bdgheish@gflenv.com T: (734)714-2340 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F:

Certificate L2367

Sample No.

Lab Number

Unique Number : 10753924

Test Package : FLEET

: GFL0059229

: 06014780

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.

Received

Diagnosed

Diagnostician : Wes Davis

Submitted By: Belal Dgheish