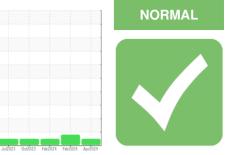


## **OIL ANALYSIS REPORT**

Sample Rating Trend



652M Component Diesel Engine

# PETRO CANADA DURON SHP 15W40 (--- GAL)

SAMPLE INFORMATION method

### DIAGNOSIS Recommendation

Resample at the next service interval to monitor.

Machine Id

#### Wear

All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil.

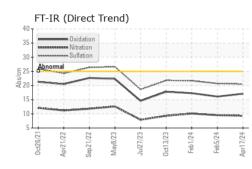
#### Fluid Condition

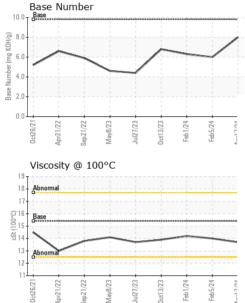
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Number		Client Info		GFL0116909	GFL0107711	GFL0107739
Sample Date		Client Info		17 Apr 2024	05 Feb 2024	01 Feb 2024
Machine Age	hrs	Client Info		10762	10304	10286
Oil Age	hrs	Client Info		600	600	600
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	ABNORMAL	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	>120	29	17	32
Chromium	ppm	ASTM D5185m	>20	<1	<1	1
Nickel	ppm	ASTM D5185m	>5	0	<u> </u>	1
Titanium	ppm	ASTM D5185m	>2	0	0	<1
Silver	ppm	ASTM D5185m	>2	0	0	<1
Aluminum	ppm	ASTM D5185m	>20	3	3	1
Lead	ppm	ASTM D5185m	>40	0	<1	<1
Copper	ppm	ASTM D5185m	>330	1	2	4
Tin	ppm	ASTM D5185m	>15	0	<1	1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	<1
ADDITIVES		method	limit/base			historv2
ADDITIVES Boron		method ASTM D5185m	limit/base	current	history1	history2 1
Boron	ppm	ASTM D5185m				
Boron Barium	ppm ppm	ASTM D5185m ASTM D5185m	0	current 0	history1 2 0	1
Boron Barium Molybdenum	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	current 0 <1 62	history1 2 0 60	1 0
Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	ourrent 0 <1 62 <1	history1 2 0 60 <1	1 0 68 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	current 0 <1 62 <1 940	history1 2 0 60 <1 945	1 0 68 <1 1054
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	current         0         <1         62         <1         940         1092	history1 2 0 60 <1 945 1045	1 0 68 <1 1054 1168
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm 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	Current 0 <1 62 <1 940 1092 1029	history1         2         0         60         <1         945         1045         1016	1 0 68 <1 1054 1168 989
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	current         0         <1         62         <1         940         1092	history1 2 0 60 <1 945 1045	1 0 68 <1 1054 1168
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm 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	current         0         <1         62         <1         940         1092         1029         1308	history1         2         0         60         <1         945         1045         1016         1279	1 0 68 <1 1054 1168 989 1357
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm 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 0 1010 1070 1150 1270 2060	Current 0 <1 62 <1 940 1092 1029 1308 3436	history1       2       0       60       <1       945       1045       1016       1279       2714	1 0 68 <1 1054 1168 989 1357 2563
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b>	0 0 60 1010 1070 1150 1270 2060	current         0         <1         62         <1         940         1092         1029         1308         3436         current         5	history1       2       0       60       <1       945       1045       1016       1279       2714       history1	1 0 68 <1 1054 1168 989 1357 2563 history2 6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm 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	0       <1       62       <1       940       1092       1029       1308       3436       current	history1       2       0       60       <1       945       1045       1016       1279       2714       history1       5	1 0 68 <1 1054 1168 989 1357 2563 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b>	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25	current       0       <1       62       <1       940       1092       1029       1308       3436       current       5       12	history1       2       0       60       <1       945       1045       1016       1279       2714       history1       5       5       5	1 0 68 <1 1054 1168 989 1357 2563 history2 6 2
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 ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >20 20	0       <1       62       <1       940       1092       1029       1308       3436       current       5       12       <1       current	history1       2       0       60       <1       945       1045       1016       1279       2714       history1       5       6       6       7       10       10       10       10        10	1 0 68 <1 1054 1168 989 1357 2563 history2 6 2 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 ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	current       0       <1       62       <1       940       1092       1029       1308       3436       current       5       12       <1       current       0.6	history1       2       0       60       <1       945       1045       1016       1279       2714       history1       5       5       5       5       5       5       0.8	1 0 68 <1 1054 1168 989 1357 2563 history2 6 2 2 2 history2 1.1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b> ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 >20 imit/base >20	current       0       <1       62       <1       940       1092       1029       1308       3436       current       5       12       <1       current       0.6       9.3	history1       2       0       60       <1       945       1045       1016       1279       2714       history1       5       5       5       5       5       0.8       9.5	1 0 68 <1 1054 1168 989 1357 2563 history2 6 2 2 2 history2 1.1 1.1 10.1
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 <b>TS</b> ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 <b>imit/base</b> >20 <b>imit/base</b> >20	0       <1       62       <1       940       1092       1029       1308       3436       current       5       12       <1       current       0.6       9.3       20.5	history1       2       0       60       <1       945       1045       1016       1279       2714       history1       5       5       5       5       5       9.5       20.7	1 0 68 <1 1054 1168 989 1357 2563 history2 6 2 2 2 <u>history2</u> 1.1 10.1 21.7
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 2060 225 20 220 220 220 20 20 20 20 20 20 20 20	0       <1       62       <1       940       1092       1029       1308       3436       current       5       12       <1       current       0.6       9.3       20.5       current	history1       2       0       60       <1       945       1045       1016       1279       2714       bistory1       5       5       5       5       5       9.5       20.7       history1	1 0 68 <1 1054 1168 989 1357 2563 history2 6 2 2 history2 1.1 10.1 21.7 history2
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 <b>TS</b> ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 <b>imit/base</b> >20 <b>imit/base</b> >20	0       <1       62       <1       940       1092       1029       1308       3436       current       5       12       <1       current       0.6       9.3       20.5	history1       2       0       60       <1       945       1045       1016       1279       2714       history1       5       5       5       5       5       9.5       20.7	1 0 68 <1 1054 1168 989 1357 2563 history2 6 2 2 2 history2 1.1 10.1 21.7



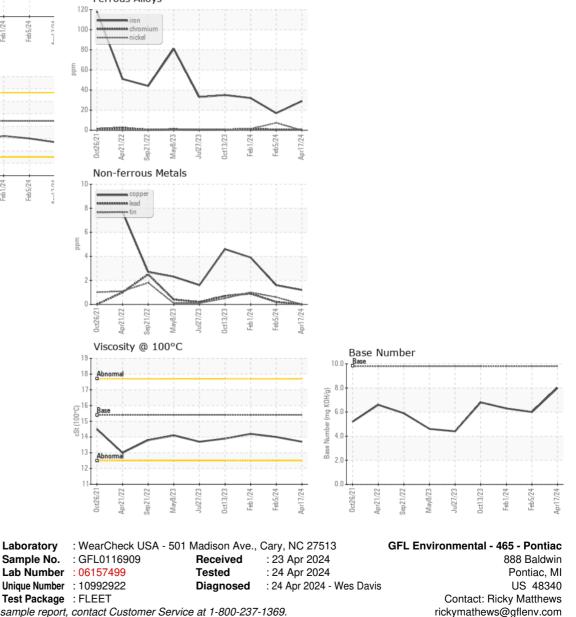
# **OIL ANALYSIS REPORT**





VISUAL		method				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	14.0	14.2
GRAPHS						

Ferrous Alloys



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)

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