

### **OIL ANALYSIS REPORT**

#### Sample Rating Trend



# Machine Id 521031

#### Component Diesel Engine

Fluid PETRO CANADA DURON SHP 15W40 (40 QTS)

#### 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.

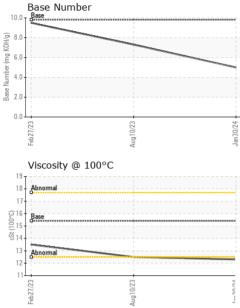
				Aug2023 Jan20			
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2	
Sample Number		Client Info		GFL0092865	GFL0085620	GFL0076874	
Sample Date		Client Info		30 Jan 2024	10 Aug 2023	27 Feb 2023	
Machine Age	hrs	Client Info		7558	7068	6866	
Oil Age	hrs	Client Info		490	202	600	
Oil Changed		Client Info		Changed	Changed	Changed	
Sample Status				NORMAL	NORMAL	ABNORMAL	
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	0.0	
WEAR METAL	S	method	limit/base	current	history1	history2	
Iron	ppm	ASTM D5185m	>110	33	17	17	
Chromium	ppm	ASTM D5185m	>4	2	1	1	
Nickel	ppm	ASTM D5185m	>2	1	<1	0	
Titanium		ASTM D5185m	~_	0	<1	<1	
Silver	ppm	ASTM D5185m	>2	۰ <1	<1	0	
Aluminum	ppm	ASTM D5185m	>2	5	2	3	
	ppm				2	3	
Lead	ppm	ASTM D5185m	>45	10			
Copper	ppm	ASTM D5185m	>85	4	4	11	
Tin	ppm	ASTM D5185m	>4	2		3	
Vanadium	ppm	ASTM D5185m		0	0	0	
					0		
Cadmium	ppm	ASTM D5185m		0	0	0	
Cadmium ADDITIVES	ppm	ASTM D5185m method	limit/base	0 current	0 history1	0 history2	
	ppm ppm		limit/base 0			history2 80	
ADDITIVES		method ASTM D5185m		current	history1	history2	
ADDITIVES Boron	ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	current 24	history1 16	history2 80	
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	0 0 60	current 24 0	history1 16 0	history2 80 0	
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	current 24 0 58	history1 16 0 54	history2 80 0 73	
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	current 24 0 58 <1	history1 16 0 54 <1	history2 80 0 73 2	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	current 24 0 58 <1 814	history1 16 0 54 <1 846	history2 80 0 73 2 894	
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 24 0 58 <1 814 992	history1 16 0 54 <1 846 1115	history2 80 0 73 2 894 1219	
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           24           0           58           <1           814           992           941	history1 16 0 54 <1 846 1115 930	history2 80 0 73 2 894 1219 935	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	0 0 60 0 1010 1070 1150 1270	current           24           0           58           <1           814           992           941           1099	history1           16           0           54           <1           846           1115           930           1136	history2 80 0 73 2 894 1219 935 1165	
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 1010 1070 1150 1270 2060	Current 24 0 58 <1 814 992 941 1099 2519	history1 16 0 54 <1 846 1115 930 1136 3290	history2 80 0 73 2 894 1219 935 1165 3568	
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	0 0 60 1010 1070 1150 1270 2060	current           24           0           58           <1           814           992           941           1099           2519           current	history1 16 0 54 <1 846 11115 930 1136 3290 history1	history2 80 0 73 2 894 1219 935 1165 3568 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 0 1010 1070 1150 1270 2060 <b>limit/base</b> >30	current           24           0           58           <1           814           992           941           1099           2519           current           10	history1         16         0         54         <1         846         1115         930         1136         3290         history1         15	history2         80         0         73         2         894         1219         935         1165         3568         history2	
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 <b>limit/base</b> >30	current           24           0           58           <1           814           992           941           1099           2519           current           10           7	history1         16         0         54         <1         846         1115         930         1136         3290         history1         15         6	history2         80         0         73         2         894         1219         935         1165         3568         history2         33         15	
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> >30	24         0         58         <1         814         992         941         1099         2519         current         10         7         7	history1         16         0         54         <1         846         1115         930         1136         3290         history1         15         6         16	<ul> <li>history2</li> <li>80</li> <li>0</li> <li>73</li> <li>2</li> <li>894</li> <li>1219</li> <li>935</li> <li>1165</li> <li>3568</li> <li>history2</li> <li>33</li> <li>15</li> <li>64</li> </ul>	
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 <b>Imit/base</b> >30 -20	current         24         0         58         <1         814         992         941         1099         2519         current         10         7         7         current         0.6	history1         16         0         54         <1         846         1115         930         1136         3290         history1         15         6         16         history1         0.3	history2         80         0         73         2         894         1219         935         1165         3568         history2         33         15         64         history2         0.2	
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 >30 limit/base >20	current         24         0         58         <1         814         992         941         1099         2519         current         10         7         7         current	history1         16         0         54         <1         846         1115         930         1136         3290         history1         15         6         16         history1	history2         80         73         2         894         1219         935         1165         3568         history2         33         15         64         history2	
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	0 0 0 1010 1070 1150 1270 2060 <b>imit/base</b> >30 <b>imit/base</b> >3 20	current         24         0         58         <1         814         992         941         1099         2519         current         10         7         current         0.6         12.5         24.7	history1         16         0         54         <1         846         1115         930         1136         3290         history1         15         6         16         history1         0.3         9.0         19.6	history2         80         0         73         2         894         1219         935         1165         3568         history2         ▲ 33         15         64         0.2         6.8         19.4	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRA	ppm ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b> ppm ppm ppm ppm	method           ASTM D5185m           ASTM D7185M           *ASTM D7624           *ASTM D7624           *ASTM D7415           method	0 0 0 1010 1070 1150 1270 2060 2060 2060 2060 200 200 200 200 20	current         24         0         58         <1         814         992         941         1099         2519         current         10         7         current         0.6         12.5         24.7         current	history1         16         0         54         <1         846         1115         930         1136         3290         history1         15         6         16         history1         0.3         9.0         19.6         history1	<ul> <li>history2</li> <li>80</li> <li>0</li> <li>73</li> <li>2</li> <li>894</li> <li>1219</li> <li>935</li> <li>1165</li> <li>3568</li> <li>history2</li> <li>33</li> <li>15</li> <li>64</li> <li>history2</li> <li>0.2</li> <li>6.8</li> <li>19.4</li> <li>history2</li> </ul>	
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	0 0 0 1010 1070 1150 1270 2060 2060 2060 2060 200 200 200 200 20	current         24         0         58         <1         814         992         941         1099         2519         current         10         7         current         0.6         12.5         24.7	history1         16         0         54         <1         846         1115         930         1136         3290         history1         15         6         16         history1         0.3         9.0         19.6	history2         80         0         73         2         894         1219         935         1165         3568         history2         ▲ 33         15         64         history2         0.2         6.8         19.4	

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## **OIL ANALYSIS REPORT**

VISUAL



	Laboratory Sample No. Lab Number Unique Number Test Package s sample report, st methods that a	e : FLEET Contact: Service contact Customer Service at 1-800-237-1369.							
		Non-ferrous Meta Non-ferrous Meta Indiana Viscosity @ 100° Base Discosity @ 100°	ez/ol@ny		+2/06/mer +2/06/mer	Base Number	Aug1023		
Aug10/23	VC VC	Visc @ 100°C GRAPHS Ferrous Alloys	cSt	ASTM D445	15.4	12.3	12.5	13.5	
		FLUID PROP		method	limit/base	current	history1	history2	
		Emulsified Water Free Water	scalar scalar	*Visual *Visual	>0.2	NEG NEG	NEG NEG	NEG NEG	
Aug 10/23	Jan 30/24	Appearance Odor	scalar scalar	*Visual *Visual	NORML NORML	NORML NORML	NORML	NORML	
23		Sand/Dirt	scalar	*Visual	NONE	NONE	NONE NORML	NONE	
		Debris	scalar	*Visual	NONE	NONE	NONE	NONE	
		Silt	scalar	*Visual	NONE	NONE	NONE	NONE	
		Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE	
			scalar						

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Submitted By: TECHNICIAN ACCOUNT