

## **OIL ANALYSIS REPORT**

Sample Rating Trend





Machine Id 7838M Component Diesel Engine

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

Recommendation	

Resample at the next service interval to monitor.

Fluid

#### Wear

All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil.

### Fluid Condition

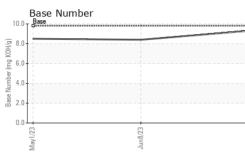
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

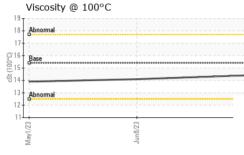
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0105687	GFL0069835	GFL0069879
Sample Date		Client Info		18 Dec 2023	08 Jun 2023	01 May 2023
Machine Age	hrs	Client Info		8783	7939	7734
Oil Age	hrs	Client Info		0	600	600
Oil Changed		Client Info		Not Changd	Changed	Changed
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	3	3	4
Chromium	ppm	ASTM D5185m	>5	<1	0	0
Nickel	ppm	ASTM D5185m	>2	0	0	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>30	2	1	1
Lead	ppm	ASTM D5185m	>30	0	0	0
Copper	ppm	ASTM D5185m	>150	15	0	0
Tin	ppm	ASTM D5185m	>5	0	<1	0
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
				·	-	
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 0			history2 5
	ppm ppm			current	history1	
Boron		ASTM D5185m	0	current 17	history1 5	5
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	current 17 0	history1 5 0	5 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	current 17 0 60	history1 5 0 57	5 0 59
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	current 17 0 60 0	history1 5 0 57 <1	5 0 59 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	current 17 0 60 0 872	history1 5 0 57 <1 943 1036 1052	5 0 59 <1 976
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	Current 17 0 60 0 872 975	history1 5 0 57 <1 943 1036	5 0 59 <1 976 1057
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	0 0 60 0 1010 1070 1150	Current 17 0 60 0 872 975 865	history1 5 0 57 <1 943 1036 1052	5 0 59 <1 976 1057 1085
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	current     17     0     60     0     872     975     865     1115	history1 5 0 57 <1 943 1036 1052 1265 3038 history1	5 0 59 <1 976 1057 1085 1319 3174 <b>history2</b>
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	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	current     17     0     60     0     872     975     865     1115     2830     current     9	history1   5   0   57   <1   943   1036   1052   1265   3038   history1   2	5 0 59 <1 976 1057 1085 1319 3174 <b>history2</b> 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	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	current 17 0 60 0 872 975 865 1115 2830 current	history1 5 0 57 <1 943 1036 1052 1265 3038 history1	5 0 59 <1 976 1057 1085 1319 3174 <b>history2</b>
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	current     17     0     60     0     872     975     865     1115     2830     current     9	history1   5   0   57   <1   943   1036   1052   1265   3038   history1   2	5 0 59 <1 976 1057 1085 1319 3174 <b>history2</b> 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 <b>limit/base</b> >20	current     17     0     60     0     872     975     865     1115     2830     current     9     0	history1   5   0   57   <1   943   1036   1052   1265   3038   history1   2   2   2	5 0 59 <1 976 1057 1085 1319 3174 <b>history2</b> 2 1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>imit/base</b> >20	current   17   0   60   0   872   975   865   1115   2830   current   9   0   1   current   0.1	history1   5   0   57   <1   943   1036   1052   1265   3038   history1   2   2   2   2   10   0.1	5 0 59 <1 976 1057 1085 1319 3174 <b>history2</b> 2 1 1 <1 <b>history2</b> 0.1
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 TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 220 220	current     17     0     60     0     872     975     865     1115     2830     current     9     0     1     current     0.1     4.4	history1   5   0   57   <1   943   1036   1052   1265   3038   history1   2   2   2   2   1   history1   0.1   5.6	5 0 59 <1 976 1057 1085 1319 3174 <b>history2</b> 2 2 1 <1 <1 <b>history2</b> 0.1 5.7
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>imit/base</b> >20 200 <b>imit/base</b>	current   17   0   60   0   872   975   865   1115   2830   current   9   0   1   current   0.1	history1   5   0   57   <1   943   1036   1052   1265   3038   history1   2   2   2   2   10   0.1	5 0 59 <1 976 1057 1085 1319 3174 <b>history2</b> 2 1 1 <1 <b>history2</b> 0.1
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 ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 2060 200 200 200 200 200 200	current     17     0     60     0     872     975     865     1115     2830     current     9     0     1     current     0.1     4.4	history1   5   0   57   <1   943   1036   1052   1265   3038   history1   2   2   2   2   1   history1   0.1   5.6	5 0 59 <1 976 1057 1085 1319 3174 <b>history2</b> 2 2 1 <1 <1 <b>history2</b> 0.1 5.7
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 ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>imit/base</b> >20 <b>imit/base</b> >3 >20 >3	current   17   0   60   0   872   975   865   1115   2830   current   9   0   1   current   0.1   4.4   17.7	history1   5   0   57   <1   943   1036   1052   1265   3038   history1   2   2   2   2   10   0.1   5.6   17.4	5 0 59 <1 976 1057 1085 1319 3174 <b>history2</b> 2 1 <1 <1 <b>history2</b> 0.1 5.7 17.4



# **OIL ANALYSIS REPORT**

VISUAL





						current		
		White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
	1	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
8/23		Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Jun8/23	10	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
		Emulsified Wate		*Visual	>0.2	NEG	NEG	NEG
		Free Water	scalar	*Visual		NEG	NEG	NEG
					lineit/le e e e			
		FLUID PRO		method	limit/base	current	history1	history2
		Visc @ 100°C	cSt	ASTM D445	15.4	14.4	14.1	13.9
		GRAPHS						
	10	Ferrous Alloys						
Jun8/23		iron chromium						
Lu C	(	nickel						
	=	6						
	mdd	4						
	2	2 -						
	,							
	(	/23	1/23		123			
		May1/23	Jun8/23		Dec18/23			
		Non-ferrous M	etals		_			
	16	<sup>6</sup> T						
	14	copper						
	1.	4 - neessaaaaa lead			1			
	12	4 lead						
	12	2 - tin		/				
	12	2 - tin		/				
	12	2 - tin		/				
	12	2 - tin		/	/			
	12	2 - tin		/	/			
	12	2	53		23			
	12	2	Jun823		et 18/23			
	12	2	Jun823		Dec18/23			
	12 10 6 2 2 2 0 15	2			Dec18/23	Base Number		
	12 10 4 4 4 4 4 4 4 4 4 4 4 4 4 4 19 11 11 11 11 11 11 11 11 11 11 11 11	2			10.0	Base	-	
	12 10 4 4 4 4 4 4 4 4 4 4 4 4 4 11 11 11 11 1	2			10.0	Base	-	
	12 10 4 4 4 4 4 4 4 4 4 4 4 4 4 11 11 11 11 1	2			10.0	Base		
	12 10 4 4 4 4 4 4 4 4 4 4 4 4 4 11 11 11 11 1	2			10.0	Base	-	
	11 11 11 11 11 11 11 11 11 11 11 11 11	Viscosity @ 10			10.0	Base		
	12 10 10 10 10 10 10 10 10 10 10 10 10 10	Viscosity @ 10			0.0 0.8 0.0 0.0 0.0 0.0	Base	-	
	11 11 11 11 11 11 11 11 11 11 11 11 11	Viscosity @ 10			10.0 (0)HOX 6.0 	Base	-	
	12 10 10 10 10 10 10 10 10 10 10 10 10 10	Viscosity @ 10	0°C		10.0 (0)HO0 Bun )squark 4.0 2.0 0.0	Base	23	
	12 10 10 10 10 10 10 10 10 10 10 10 10 10	Viscosity @ 10			10.0 (0)HOX 6.0 	Base	Jun823	
Unique	ratory : Package :	Viscosity @ 10 Viscosity @ 10 Abnomal Abnomal Abnomal Base Abnomal Base Abnomal Abno	A - 501 Madia Recieved Diagnos Diagnost nal Tests: FT	d : 20   ed : 21   tician : Sea F-IR(Diff) )	10.0 ())) ()) ()) ()) ()) ()) ()) ()) ()) ()	Base.	vironmental - 415 Ster Conta	5 - Michigan E 6200 Elmrid fling Heights, US 483 ct: Frank Wo lak@gflenv.cd

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

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