

## **OIL ANALYSIS REPORT**

Sample Rating Trend





**1108M** Component **Diesel Engine** Fluid

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

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.

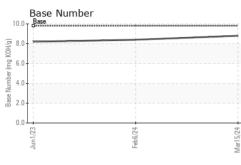
#### Fluid Condition

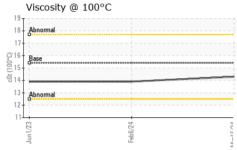
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0114335	GFL0110136	GFL0069847
Sample Date		Client Info		15 Mar 2024	06 Feb 2024	01 Jun 2023
Machine Age	hrs	Client Info		13942	12837	12753
Oil Age	hrs	Client Info		0	84	600
Oil Changed		Client Info		Not Changd	Not Changd	Changed
Sample Status				NORMAL	NORMAL	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	>200	5	7	7
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	<1	<1	0
Titanium	ppm	ASTM D5185m	>2	<1	<1	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>30	2	2	1
Lead	ppm	ASTM D5185m	>30	<1	<1	0
Copper	ppm	ASTM D5185m	>30	<1	2	1
Tin	ppm	ASTM D5185m	>15	<1	<1	0
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	<1	0
Cadmium ADDITIVES	ppm	ASTM D5185m method	limit/base	0 current	<1 history1	0 history2
	ppm ppm		limit/base 0			-
ADDITIVES		method		current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	0	current 3	history1 2	history2 2
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	0	current 3 0	history1 2 13	history2 2 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	current 3 0 59	history1 2 13 59	history2 2 0 58
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 59 0	history1 2 13 59 <1	history2 2 0 58 <1
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 3 0 59 0 941	history1 2 13 59 <1 882	history2 2 0 58 <1 938
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm 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           59           0           941           1082	history1 2 13 59 <1 882 1058	history2 2 0 58 <1 938 1106
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           59           0           941           1082           1030	history1           2           13           59           <1           882           1058           1018	history2 2 0 58 <1 938 1106 997
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           3           0           59           0           941           1082           1030           1261	history1         2         13         59         <1         882         1058         1018         1171	history2 2 0 58 <1 938 1106 997 1263
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	0 0 60 1010 1070 1150 1270 2060	Current 3 0 59 0 941 1082 1030 1261 3325	history1         2         13         59         <1         882         1058         1018         1171         3328	history2 2 0 58 <1 938 1106 997 1263 3624
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         3         0         59         0         941         1082         1030         1261         3325         current	history1 2 13 59 <1 882 1058 1018 1018 1171 3328 history1	history2         2         0         58         <1         938         1106         997         1263         3624         history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium 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 <b>imit/base</b>	current         3         0         59         0         941         1082         1030         1261         3325         current         4	history1         2         13         59         <1         882         1058         1018         1171         3328         history1         4	history2         2         0         58         <1         938         1106         997         1263         3624         history2         4
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 1010 1070 1150 1270 2060 <b>imit/base</b>	current         3         0         59         0         941         1082         1030         1261         3325         current         4         15	history1         2         13         59         <1         882         1058         1018         1171         3328         history1         4         0	history2           2           0           58           <1           938           1106           997           1263           3624           history2           4           10
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>imit/base</b> >30	current         3         0         59         0         941         1082         1030         1261         3325         current         4         15         2	history1         2         13         59         <1         882         1058         1018         1171         3328         history1         4         0         2	history2         2         0         58         <1         938         1106         997         1263         3624         history2         4         10         3
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b>	method           ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>Imit/base</b> >30 20	current         3         0         59         0         941         1082         1030         1261         3325         current         4         15         2         current	history1         2         13         59         <1         882         1058         1018         1171         3328         history1         4         0         2         history1	history2         2         0         58         <1         938         1106         997         1263         3624         history2         4         10         3         history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Calcium Phosphorus Zinc Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b> ppm ppm	method           ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>limit/base</b> >30 20	current         3         0         59         0         941         1082         1030         1261         3325         current         4         15         2         current         0.2	history1         2         13         59         <1         882         1058         1018         1171         3328         history1         4         0         2         history1         0.4	history2         2         0         58         <1         938         1106         997         1263         3624         history2         4         10         3         history2         0.3
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Silicon Sidium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >30 >20 imit/base >3 >20	current         3         0         59         0         941         1082         1030         1261         3325         current         4         15         2         current         0.2         5.9	history1         2         13         59         <1         882         1058         1018         1171         3328         history1         4         0         2         history1         0.4         7.2	history2         2         0         58         <1         938         1106         997         1263         3624         history2         4         10         3         history2         0.3         6.7
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 <b>imit/base</b> >30 20 <b>imit/base</b> >3 >20 >3	Current         3         0         59         0         941         1082         1030         1261         3325         current         4         15         2         current         0.2         5.9         18.2	history1         2         13         59         <1         882         1058         1018         1171         3328         history1         4         0         2         history1         0.4         7.2         18.7	history2         2         0         58         <1         938         1106         997         1263         3624         history2         4         10         3         history2         0.3         6.7         19.6



# **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
- Feb 6/24 -	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Feb6/24 Mar15/24	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
1	Free Water	scalar	*Visual		NEG	NEG	NEG
	FLUID PROPE	RTIES	method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445	15.4	14.3	13.9	13.9
	GRAPHS						
· · · · · · · · · · · · · · · · · · ·	Ferrous Alloys						
/24 	iron						
Feb 6/24	8 - nickel	-					
	6-						
	특 십 4						
	2 -						
	Jun1/23	Feb6/24 -		5/24 -			
	μη	Feb		Mar15/24			
	Non-ferrous Metal	S					
	10 copper						
	8 - Research lead						
	essesses tin						
	6						
	ud d						
	2						
	/53	124		124			
	Jun1/23	Feb 6/24		Mar15/24			
	Viscosity @ 100°C	:		_	De es Norrelese		
	19 <sub>1</sub> ,			10.0	Base Number		
	18 - Abnormal						
	17-				-		
	C <sup>16</sup> Base			9 6.0			
			*****	E			
	G 16 Base 15 3 14			4.0			
	0015 314 13 Abnormal			ase N			
	12			4.0 <sup>380</sup> 82.0			
	13 - Abnormal 12	4		0.0		5	
	13 - Abnormal 12	eb6/24		0.0		eb6/24	
	13 Abnormal 12	Feb6/24		2.0	-	Feb6/24	
Laboratory	: WearCheck USA - 50	1 Madiso		, NC 27513	Jun1/23	vironmental - 4	
Sample No.	: WearCheck USA - 50 : GFL0114335	1 Madiso <b>Recei</b>	ived : 19	, NC 27513 Mar 2024	Jun1/23	vironmental - 4	51 Schaefer
Sample No. Lab Number	: WearCheck USA - 50 : GFL0114335 : 06122134	1 Madiso Recei Teste	ived : 19 d : 20	, NC 27513 Mar 2024 Mar 2024	GFL En	vironmental - 4	51 Schaefer I Dearborn,
Sample No.	: WearCheck USA - 50 : GFL0114335 : 06122134 : 10936285	1 Madiso <b>Recei</b>	ived : 19 d : 20	, NC 27513 Mar 2024	GFL En	vironmental - 4	51 Schaefer

VISUAL method limit/base current historv1 historv2