

## **OIL ANALYSIS REPORT**

Sample Rating Trend





Machine Id 4623M Component Diesel Engine Fluid

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

Recommendation
necommenuation

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

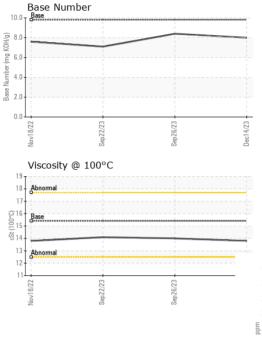
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0084918	GFL0084989	GFL0084994
Sample Date		Client Info		14 Dec 2023	26 Sep 2023	22 Sep 2023
Machine Age	hrs	Client Info		20710	20115	20113
Oil Age	hrs	Client Info		20710	20115	20113
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	>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	>90	13	39	6
Chromium	ppm	ASTM D5185m	>20	<1	2	<1
Nickel	ppm	ASTM D5185m	>2	0	0	0
Titanium	ppm	ASTM D5185m	>2	<1	<1	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	2	13	2
Lead	ppm	ASTM D5185m	>40	<1	<1	<1
Copper	ppm	ASTM D5185m	>330	<1	5	4
Tin	ppm	ASTM D5185m	>15	1	<1	<1
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	2	2	3
Barium	ppm	ASTM D5185m	0	0	0	0
Molybdenum	ppm	ASTM D5185m	60	61	63	59
Manganese	ppm	ASTM D5185m	0	<1	2	1
Magnesium	ppm	ASTM D5185m	1010	952	1018	983
Calcium	ppm	ASTM D5185m	1070	1083	1148	1102
Phosphorus						
	ppm	ASTM D5185m	1150	1046	1112	1056
Zinc	ppm ppm	ASTM D5185m ASTM D5185m	1150 1270	1046 1242		
					1112	1056
Zinc	ppm ppm	ASTM D5185m	1270	1242	1112 1362	1056 1281
Zinc Sulfur	ppm ppm	ASTM D5185m ASTM D5185m	1270 2060 limit/base	1242 3001	1112 1362 3283	1056 1281 3203
Zinc Sulfur CONTAMINAN	ppm ppm TS	ASTM D5185m ASTM D5185m method	1270 2060 limit/base	1242 3001 current	1112 1362 3283 history1	1056 1281 3203 history2
Zinc Sulfur CONTAMINAN Silicon	ppm ppm TS ppm	ASTM D5185m ASTM D5185m method ASTM D5185m	1270 2060 limit/base >25	1242 3001 current 7	1112 1362 3283 history1 12	1056 1281 3203 history2 5
Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m Method ASTM D5185m ASTM D5185m	1270 2060 limit/base >25	1242 3001 current 7 25	1112 1362 3283 history1 12 10	1056 1281 3203 history2 5 6
Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m ASTM D5185m ASTM D5185m	1270 2060 limit/base >25 >20	1242 3001 current 7 25 0	1112 1362 3283 history1 12 10 5	1056 1281 3203 history2 5 6 3
Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m Method ASTM D5185m ASTM D5185m ASTM D5185m Method	1270 2060 limit/base >25 >20 limit/base	1242 3001 current 7 25 0 current	1112 1362 3283 history1 12 10 5 history1	1056 1281 3203 history2 5 6 3 3 history2
Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method *ASTM D7844	1270 2060 limit/base >25 >20 limit/base >6	1242 3001 current 7 25 0 current 0.3	1112 1362 3283 history1 12 10 5 history1 1.3	1056 1281 3203 history2 5 6 3 3 history2 0.5
Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm TS ppm ppm ppm ppm % Abs/cm Abs/.1mm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D7844 *ASTM D7824 *ASTM D7415	1270 2060 <b>limit/base</b> >25 >20 <b>limit/base</b> >6 >20	1242 3001 current 7 25 0 current 0.3 8.6	1112 1362 3283 history1 12 10 5 history1 1.3 13.5	1056 1281 3203 history2 5 6 3 3 history2 0.5 10.4
Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm TS ppm ppm ppm ppm % Abs/cm Abs/.1mm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D7844 *ASTM D7824 *ASTM D7415	1270 2060 limit/base >25 >20 limit/base >6 >20 >20 >30	1242 3001 current 7 25 0 current 0.3 8.6 19.4	1112 1362 3283 history1 12 10 5 history1 1.3 13.5 23.8	1056 1281 3203 history2 5 6 3 3 history2 0.5 10.4 22.5



# **OIL ANALYSIS REPORT**

VISUAL



White Metal Yellow Metal Precipitate Silt Debris	scalar scalar	*Visual *Visual *Visual	NONE NONE NONE	NONE NONE NONE	NONE NONE NONE	NONE NONE NONE		
Precipitate Silt	scalar	*Visual						
Silt			NONE	NONE	NONE	NONE		
	scalar							
Debrie	Sudiai	*Visual	NONE	NONE	NONE	NONE		
Deblis	scalar	*Visual	NONE	NONE	NONE	NONE		
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE		
Appearance		*Visual	NORML	NORML	NORML	NORML		
Appearance Odor	scalar	*Visual	NORML		NORML	NORML		
Emulsified Water						NEG		
Free Water		*Visual		NEG	NEG	NEG		
FLUID PROP	ERTIES	method	limit/base	current	history1	history2		
Visc @ 100°C	cSt	ASTM D445	15.4	13.8	14.0	14.1		
GRAPHS								
Ferrous Alloys								
40 2c		$\wedge$						
chromium	/							
30								
	/							
	/							
8/22		26/23	4/23					
Nov1		Sep2	Dec1					
Non-ferrous Meta	als							
8 and								
second the second secon								
6-								
ā.								
2								
		CONTRACTOR DESCRIPTION						
1/23		3/23	1/23					
Nov18 Sep22		Sep 26	Dec14					
	С			De la Nuella				
19 T			10.					
18 - Abnormal		1		_				
17			(B/H)	0				
Base			оў б.	0-				
은15- #			ber (r					
3 14			4.	0				
13 - Abnormal			2.	0				
12-								
		23			23+			
ov18/2		sp 26/,	sc14/2	ov18/2	322/.	n /a z de		
atory : WearCheck USA - le No. : GFL0084918 umber : 06050649 Number : 10816598	: WearCheck USA - 501 Madison Ave., Cary, NC 275 : GFL0084918 <b>Recieved</b> : 04 Jan 2024 : 06050649 <b>Diagnosed</b> : 04 Jan 2024							
1	Emulsified Water Free Water FLUID PROPE Visc @ 100°C GRAPHS Ferrous Alloys Mon-ferrous Meta Viscosity @ 100°C Viscosity @ 100°C Viscosity @ 100°C Comparing Viscosity @ 100°C Viscosity @ 100°C Comparing Viscosity @ 100°C Comparing Viscosity @ 100°C Comparing Viscosity @ 100°C Comparing Co	Emulsified Water scalar Free Water scalar FLUID PROPERTIES Visc @ 100°C cSt GRAPHS Ferrous Alloys	Emulsified Water scalar *Visual Free Water scalar *Visual Free Water scalar *Visual FLUID PROPERTIES method Visc @ 100°C cSt ASTM D445 GRAPHS Ferrous Alloys	Emulsified Water scalar 'Visual >0.2 Free Water scalar 'Visual 'Uisual FLUID PROPERTIES method imit/base Visc @ 100°C cSt ASTM D445 15.4 GRAPHS Ferrous Alloys	Emulsified Water scalar *Visual >0.2 NEG Free Water scalar *Visual NEG Neg Free Water scalar *Visual NEG Neg Free Water scalar *Visual NEG Neg Free Water scalar *Visual NEG Free Water Scalar *Visual NEG Freee	Emulsified Water scalar Visual >0.2 NEG NEG NEG Free Water scalar Visual NEG NEG Full PROPERTIES method imit/base current history1 Visc @ 100°C cst ASTM D445 15.4 13.8 14.0 GRAPHS Ferrous Alloys On-ferrous Metals Viscosity @ 100°C Secosity @ 100°C <p< td=""></p<>		

Certificate L2367 To discuss this samp Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Submitted By: Belal Dgheish

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