

## **OIL ANALYSIS REPORT**

Sample Rating Trend





Machine Id **712040** Component **Diesel Engine** Fluid

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

### 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.

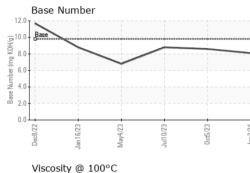
#### Fluid Condition

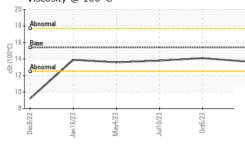
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0100889	GFL0086861	GFL0072522
Sample Date		Client Info		02 Jan 2024	05 Oct 2023	10 Jul 2023
Machine Age	mls	Client Info		63300	57620	3623
Oil Age	mls	Client Info		0	57620	600
Oil Changed		Client Info		Changed	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	c	method	limit/base	current	history1	history2
Iron		ASTM D5185m	>80		3	17
-	ppm			12		
Chromium	ppm	ASTM D5185m		<1	0	<1
Nickel	ppm	ASTM D5185m	>2	0	0	<1
Titanium	ppm	ASTM D5185m	. 0	0	0	0
Silver	ppm	ASTM D5185m	>3	0 3	0	0
	ppm	ASTM D5185m		0	0	0
Lead	ppm	ASTM D5185m	>30	-		
Copper Tin	ppm	ASTM D5185m ASTM D5185m		<1	<1 0	<1
Vanadium	ppm	ASTM D5185m	>5	<1 0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
Caumum	ppm	ASTIVI DOTODITI		U	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	5	5	6
Boron Barium	ppm ppm		0		5 <1	6 0
Boron Barium Molybdenum		ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	5 0 60	5 <1 62	6 0 67
Boron Barium Molybdenum Manganese	ppm	ASTM D5185m ASTM D5185m	0 0 60 0	5 0	5 <1 62 0	6 0 67 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	5 0 60 <1 905	5 <1 62 0 868	6 0 67 <1 1084
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	5 0 60 <1 905 1040	5 <1 62 0 868 1024	6 0 67 <1 1084 1248
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	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	5 0 60 <1 905 1040 998	5 <1 62 0 868 1024 999	6 0 67 <1 1084 1248 1196
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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270	5 0 60 <1 905 1040 998 1235	5 <1 62 0 868 1024 999 1183	6 0 67 <1 1084 1248 1196 1456
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	5 0 60 <1 905 1040 998	5 <1 62 0 868 1024 999	6 0 67 <1 1084 1248 1196 1456 4154
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	5 0 60 <1 905 1040 998 1235	5 <1 62 0 868 1024 999 1183	6 0 67 <1 1084 1248 1196 1456
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 ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	5 0 60 <1 905 1040 998 1235 2849	5 <1 62 0 868 1024 999 1183 3252 history1 2	6 0 67 <1 1084 1248 1196 1456 4154
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	5 0 60 <1 905 1040 998 1235 2849 current 2 4	5 <1 62 0 868 1024 999 1183 3252 history1 2 0	6 0 67 <1 1084 1248 1196 1456 4154 history2
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	0 0 60 1010 1070 1150 1270 2060	5 0 60 <1 905 1040 998 1235 2849 current 2	5 <1 62 0 868 1024 999 1183 3252 history1 2	6 0 67 <1 1084 1248 1196 1456 4154 history2 3
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 <b>method</b> ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 <b>limit/base</b>	5 0 60 <1 905 1040 998 1235 2849 current 2 4	5 <1 62 0 868 1024 999 1183 3252 history1 2 0	6 0 67 <1 1084 1248 1196 1456 4154 <b>history2</b> 3 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 <b>imit/base</b> >20	5 0 60 <1 905 1040 998 1235 2849 current 2 4 3	5 <1 62 0 868 1024 999 1183 3252 history1 2 0 2	6 0 67 <1 1084 1248 1196 1456 4154 <b>history2</b> 3 4 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 220 220	5 0 60 <1 905 1040 998 1235 2849 current 2 4 3 3	5 <1 62 0 868 1024 999 1183 3252 history1 2 0 2 2 history1	6 0 67 <1 1084 1248 1196 1456 4154 <b>history2</b> 3 4 4 4 <b>history2</b>
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 20 <b>Imit/base</b> >20	5 0 60 <1 905 1040 998 1235 2849 current 2 4 3 current 0.4	5 <1 62 0 868 1024 999 1183 3252 history1 2 0 2 history1 0.1	6 0 67 <1 1084 1248 1196 1456 4154 <b>history2</b> 3 4 4 4 <b>history2</b> 0.5
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 <b>TS</b> ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 2060 200 200 200 200 200 200	5 0 60 <1 905 1040 998 1235 2849 <u>current</u> 2 4 3 <u>current</u> 0.4 8.2	5 <1 62 0 868 1024 999 1183 3252 history1 2 0 2 bistory1 0.1 4.7	6 0 67 <1 1084 1248 1196 1456 4154 history2 3 4 4 4 4 history2 0.5 8.7
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 <b>TS</b> ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 220 20 20 320 320 33 220 330	5 0 60 <1 905 1040 998 1235 2849 <u>current</u> 2 4 3 <u>current</u> 0.4 8.2 19.3	5 <1 62 0 868 1024 999 1183 3252 history1 2 0 2 history1 0.1 4.7 16.8	6 0 67 <1 1084 1248 1196 1456 4154 <b>history2</b> 3 4 4 4 <b>history2</b> 0.5 8.7 20.1
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 TS ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 2060 200 220 220 220 220 330 30 10000000000	5 0 60 <1 905 1040 998 1235 2849 Current 2 4 3 Current 0.4 8.2 19.3 Current	5 <1 62 0 868 1024 999 1183 3252 history1 2 0 2 history1 0.1 4.7 16.8 history1	6 0 67 <1 1084 1248 1196 1456 4154 <b>history2</b> 3 4 4 4 <b>history2</b> 0.5 8.7 20.1 <b>history2</b>



# **OIL ANALYSIS REPORT**





Silt scalar *Visual NONE NONE NONE NONE NONE NONE Debris scalar *Visual NONE NONE NONE NONE NONE Sand/Dirt scalar *Visual NONE NONE NONE NONE NONE Appearance scalar *Visual NORML NORML NORML NORML NORML Emulsified Water scalar *Visual NORML NORML NORML NORML NORML Emulsified Water scalar *Visual NORM NORML NORML NORML NORML NORML Emulsified Water scalar *Visual NORM NORML NORML NORML NORML NORML NORML Scalar *Visual NORML NORML NORML NORML NORML NORML NORML Emulsified Water scalar *Visual NORM NE NEG NEG NEG NEG Free Water scalar *Visual NORM NEG NEG NEG NEG Free Water scalar *Visual NORM NEG NEG NEG NEG Free Water scalar *Visual *15.4 13.7 14.1 13.8 GRAPHS Ferrous Alloys Viscosity @ 100°C Viscosity @ 100°C	VISUAL		method	limit/base	current	history1	history2
Precipitate scalar Visual NONE NONE NONE NONE NONE NONE Stit scalar Visual NONE NONE NONE NONE NONE NONE Debris scalar Visual NONE NONE NONE NONE NONE ADPearance scalar Visual NORML NORM	White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Silt scalar Visual NONE NONE NONE NONE NONE NONE NONE Scalar Visual NONE NONE NONE NONE NONE Scalar Visual NONE NONE NONE NONE NONE Scalar Visual NORML NORM	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Debris scalar Visual NONE NONE NONE NONE NONE NONE Appearance scalar Visual NONE NONE NONE NONE NONE Appearance scalar Visual NORML NORML NORML NORML NORML Emulsified Water scalar Visual >0.2 NEG NEG NEG NEG Tere Water scalar Visual >0.2 NEG NEG NEG NEG Scalar Visual Scalar Visual Scalar Normer Normer Scalar Visual Scalar Visual NORML NORML NORML NORML NORML NORML NORML NORML Scalar Visual Scalar Visual Scalar Visual NORML	Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirit scalar *Visual NONE NONE NONE NONE NONE Appearance scalar *Visual NORML N	Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance scalar *Visual NORML NORM	Debris	scalar	*Visual				
Odor     scalar     *Visual     NORML     NORMU       Conon     Conon	Sand/Dirt	scalar	*Visual		NONE		
Emulsified Water scalar *Visual >0.2 NEG NEG NEG Free Water scalar *Visual NEG NEG NEG NEG FLUID PROPERTIES method limit/base current history1 history1 Visc @ 100°C cSt ASTM D445 15.4 13.7 14.1 13.8 GRAPHS Ferrous Alloys On-ferrous Metals Viscosity @ 100°C Viscosity @ 100°C							
Free Water scalar "Visual NEG NEG NEG NEG FLUID PROPERTIES method limit/base ourrent history1 history2 Visc @ 100°C cSt ASTM D445 15.4 13.7 14.1 13.8 GRAPHS Ferrous Alloys							
FLUID PROPERTIES       method       limit/base       current       history1       history1         Visc @ 100°C       cSt       ASTM D445       15.4       13.7       14.1       13.8         GRAPHS         Ferrous Alloys         Onn-ferrous Metals         Image: Second Seco				>0.2			
Visc @ 100°C cSt ASTM D445 15.4 13.7 14.1 13.8 GRAPHS Ferrous Alloys On ferrous Metals Viscosity @ 100°C Commission On ferrous Metals Commission Commissio	Free Water	scalar	*Visual		NEG	NEG	NEG
GRAPHS Ferrous Alloys	FLUID PROPE	RTIES	method	limit/base	current	history1	history2
Ferrous Alloys	Visc @ 100°C	cSt	ASTM D445	15.4	13.7	14.1	13.8
Non-ferrous Metals Viscosity @ 100°C	GRAPHS						
Non-ferrous Metals Viscosity @ 100°C Viscosity @ 100°C							
Anomal and a set of the set of th			I I				
Non-ferrous Metals Viscosity @ 100°C Description Descr	chromium						
Non-ferrous Metals Viscosity @ 100°C							
Non-ferrous Metals Viscosity @ 100°C	5						
Non-ferrous Metals Viscosity @ 100°C	•						
Provide the second seco							
Non-ferrous Metals							
E29pend Non-ferrous Metals F27pend Viscosity @ 100°C							
Non-ferrous Metals		0/23 -	5/23	2/24			
Copper tin Copper tin Copper tin Copper tin Copper Co	Dec6 Jan16	Jul10	Octf	Jan 2			
Copper tin Copper tin Copper tin Copper tin Copper Co	Non-ferrous Meta	ls					
bhommal bho	<sup>0</sup> T:						
Viscosity @ 100°C Base Number 120 100 100 100 100 100 100 100	head another load						
Viscosity @ 100°C bhommal bh	• ••••••• tin						
Viscosity @ 100°C Abnormal Abnorma	6						
Viscosity @ 100°C Abnormal Abnorma							
Viscosity @ 100°C Abnormal Abnorma							
Viscosity @ 100°C Abnormal Abnorma	2						
Viscosity @ 100°C base Number base Number base Number 0,00,00,00,00 0,00,00,00,00 0,00,00,00 0,00,00,00 0,00,00,00 0,							
Viscosity @ 100°C Abnomal Base Abnomal Base Base Base Number 12.0 10.0		2 93	200 C	57:			
Viscosity @ 100°C Abnomal Base Abnomal Base Base Base Number 12.0 10.0	ec8/2 n16/2	ay 1/2	)ct5/2	an 2/2			
Abnomal Abnomal Abnomal Abnomal	-		0	7			
Abnormal Base Abnormal Abnormal Abnormal Abnormal 2 Abnormal 2 Abnormal 2 2 2 2 2 2 2 2 2 2 2 2 2		2				r	
Base         (0,0,0)           Base         (0,0,0) <td></td> <td></td> <td></td> <td>12.0</td> <td></td> <td></td> <td></td>				12.0			
2.0	8 Abnormal		k		Base		
2.0	6 - Base			(B/H0			
2.0	0	******	**************	77 8.0 B		$\checkmark$	
2.0							
2.0	Abnormal #						
	Abnormal 2						
				6.0 f. (L Numper 8ase N			
				4.0 2.0			



 Unique Number
 : 10817296
 Diagnostician
 : Don Baldridge

 Certificate L2367
 Test Package
 : FLEET

 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)

May4/23

Jul10/23

: WearCheck USA - 501 Madison Ave., Cary, NC 27513

Recieved

Diagnosed

0ct5/23 -

Jan2/24 -

: 04 Jan 2024

: 05 Jan 2024

Dec8/22 -

Jan 16/23 -

May4/23 -

Dec8/22 -

: GFL0100889

: 06051347

Laboratory Sample No.

Lab Number

Jan 16/23 -

Jul10/23

Oct5/23 -

lan2/24 -

GFL Environmental - 419 - Metro Saginaw 6950 N Michigan Saginaw, MI US 48604 Contact: Jeremy Hines jhines@gflenv.com T: (800)684-1277 06:2012) F: