

OIL ANALYSIS REPORT

Sample Rating Trend





Machine Id **1111M** Component **Diesel Engine** Fluid

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

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

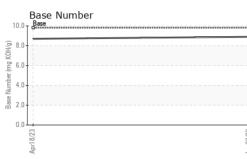
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

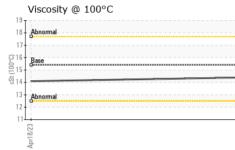
SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0069818	GFL0069876	
Sample Date		Client Info		22 Jun 2023	18 Apr 2023	
Machine Age	hrs	Client Info		10167	9586	
Oil Age	hrs	Client Info		600	600	
Oil Changed		Client Info		Changed	Changed	
Sample Status				NORMAL	NORMAL	
CONTAMINAT		method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	
		WC Method	>3.0	<1.0 NEG	<1.0 NEG	
Glycol				NEG		
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>200	3	3	
Chromium	ppm	ASTM D5185m	>20	<1	<1	
Nickel	ppm	ASTM D5185m	>2	0	0	
Titanium	ppm	ASTM D5185m	>2	0	0	
Silver	ppm	ASTM D5185m	>2	0	0	
Aluminum	ppm	ASTM D5185m	>30	2	2	
Lead	ppm	ASTM D5185m	>30	0	0	
Copper	ppm	ASTM D5185m	>30	<1	<1	
Tin	ppm	ASTM D5185m	>15	<1	<1	
Vanadium	ppm	ASTM D5185m		0	0	
Cadmium	ppm	ASTM D5185m		0	0	
ADDITIVES		method				history2
ADDITIVES Boron	maa					history2
Boron	ppm ppm	ASTM D5185m	0	4	4	
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	4 0	4	
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	4 0 59	4 0 58	
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	4 0 59 <1	4 0 58 <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	4 0 59 <1 947	4 0 58 <1 958	
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	4 0 59 <1 947 1076	4 0 58 <1 958 1036	
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	4 0 59 <1 947 1076 1069	4 0 58 <1 958 1036 1068	
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	4 0 59 <1 947 1076	4 0 58 <1 958 1036	
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 1010 1070 1150 1270 2060	4 0 59 <1 947 1076 1069 1296 3094	4 0 58 <1 958 1036 1068 1286 3059	
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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 limit/base	4 0 59 <1 947 1076 1069 1296 3094 current	4 0 58 <1 958 1036 1068 1286 3059 history1	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm 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 1010 1070 1150 1270 2060	4 0 59 <1 947 1076 1069 1296 3094 current 4	4 0 58 <1 958 1036 1068 1286 3059 history1 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 limit/base >30	4 0 59 <1 947 1076 1069 1296 3094 <u>current</u> 4 <1	4 0 58 <1 958 1036 1068 1286 3059 history1 2 <1	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm 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 limit/base >30	4 0 59 <1 947 1076 1069 1296 3094 <i>current</i> 4	4 0 58 <1 958 1036 1068 1286 3059 history1 2	 history2
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	0 0 60 0 1010 1070 1150 1270 2060 limit/base >30	4 0 59 <1 947 1076 1069 1296 3094 <u>current</u> 4 <	4 0 58 <1 958 1036 1068 1286 3059 history1 2 <1	 history2
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 limit/base >30	4 0 59 <1 947 1076 1069 1296 3094 current 4 <1 1	4 0 58 <1 958 1036 1068 1286 3059 history1 2 <1 2	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >30 	4 0 59 <1 947 1076 1069 1296 3094 <i>current</i> 4 <1 1 <i>current</i>	4 0 58 <1 958 1036 1068 1286 3059 history1 2 <1 2 <1 2 history1	 history2 history2
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 limit/base >30 	4 0 59 <1 947 1076 1069 1296 3094 <i>current</i> 4 <1 1 <i>current</i> 0.4	4 0 58 <1 958 1036 1068 1286 3059 history1 2 2 <1 2 history1 0.3	 history2 history2
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 imit/base >30 imit/base >20	4 0 59 <1 947 1076 1069 1296 3094 <i>current</i> 4 <1 1 <i>current</i> 0.4 6.8	4 0 58 <1 958 1036 1068 1286 3059 history1 2 2 <1 2 1 2 history1 0.3 6.7	 history2 history2
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 imit/base >30 imit/base >20 imit/base >3 >20	4 0 59 <1 947 1076 1069 1296 3094 <i>current</i> 4 <1 1 <i>current</i> 0.4 6.8 18.0	4 0 58 <1 958 1036 1068 1286 3059 history1 2 <1 2 <1 2 history1 0.3 6.7 17.6 history1	 history2 history2 history2
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 imit/base >30 200 imit/base >3 >20	4 0 59 <1 947 1076 1069 1296 3094 <i>current</i> 4 <1 1 1 <i>current</i> 0.4 6.8 18.0	4 0 58 <1 958 1036 1068 1286 3059 history1 2 <1 2 <1 2 history1 0.3 6.7 17.6	 history2 history2 history2 history2



OIL ANALYSIS REPORT

VISUAL





	VISUAL	/	methou	iiiiii/base			
	White Metal	scalar	*Visual	NONE	NONE	NONE	
	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	
	Precipitate	scalar	*Visual	NONE	NONE	NONE	
	Silt	scalar	*Visual	NONE	NONE	NONE	
	Debris	scalar	*Visual	NONE	NONE	NONE	
	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	
- 23		scalar	*Visual	NORML	NORML	NORML	
Jun22/23	Appearance						
- -	000	scalar	*Visual	NORML	NORML	NORML	
	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	
	Free Water	scalar	*Visual		NEG	NEG	
	FLUID PROPE	ERTIES	method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445	15.4	14.4	14.1	
	GRAPHS						
	Ferrous Alloys						
	¹⁰						
	8 -						
	8 mickel						
	6 -						
	шd						
	4						
	2						
	2						
	Apr1 8/23			Jun22/23			
	Apr			Jun			
	Non-ferrous Meta	ils					
	10 copper 1						
	8						
	tin						
	6						
	ud d						
	4						
	2						
	-						
	18/23			Jun22/23			
	Apr			Jun			
	Viscosity @ 100°	С			Base Number		
	viscosity @ 100						
	19 T			10.0	Base		
	, -			10.0	D		
	19 T				Base		
	19 18 17				Base		
	19 18 17				Base		
	19 18 Abnormal				Asse		
	19 18 Abnormal 17 Gala Base 15 13 14				Asse		
	19 18 Abnormal 17 G-16 Base 35 14 Abnormal			1.8 iper (mg KOH/g)	Base		
	19 18 Abnormal 17 16 Base 15 14 13 Abnormal 12			(0)HO3 8.1 (0)HO3 988 8.2.1 2.1	Base		
	Abnormal Abnormal Base Base 3 14 Abnormal 12 11			(b)HOX bu) Jaquun 4.1 988 g.2.	Base		
	Abnormal Abnormal Base Base 3 14 Abnormal 12 11			(b)HOX bu) Jaquun 4.1 988 g.2.	Base		
	19 18 Abnormal 17 16 Base 15 14 13 Abnormal 12			(0)HO3 8.1 (0)HO3 988 8.2.1 2.1	Base		
Laboratory	19 18 17 10 10 10 10 10 10 10 10 10 10	501 Madie	son Ave. Ca	1.8 1.9 1.9 1.9 1.9 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	Base Electronic de la construction de la construct		3 - Metro/MI F
Laboratory Sample No.	Abnormal Abnormal Base Abnormal Abnormal Conception Base Abnormal Conception Conc			(b)HO3 (b	Base Electronic de la construction de la construct	ironmental - 418	
Laboratory Sample No. Lab Number	19 18 17 10 10 10 10 10 10 10 10 10 10	Received	:200	1.8 1.9 1.9 1.9 1.9 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	Base Electronic de la construction de la construct	ironmental - 418	2001 Hoover
Sample No. Lab Number	Abnormal Abnormal Abnormal Abnormal Construction Base Abnormal Construction Co	Received Diagnose	d : 20 ((b)HO3 (b) (b)HO3 (b) (b)HO3 (b) (b)HO3 (b) (b)HO3 (b) (c)HO3 (c)HO3 (c) (c)HO3 (c)HO3 (c) (c)HO3 (c)HO3 (c) (c)HO3 (c)HO3 (c)HO3 (c) (c)HO3 (c)HO3 (c)HO3 (c) (c)HO3 (c)HO3 (c	Base Electronic de la construction de la construct	ironmental - 418	2001 Hoover Warren,
Sample No.	Abnormal Abnormal Abnormal Abnormal Abnormal C S S S S S S S S S S S S S	Received	d : 20 ((b)HOy bu) Jaquing asses (b)HOy bu) Jaquing asses (b)HOy bu) Jaquing asses 2.0 0.1 FV, NC 275513 Doct 2023 Doct 2023	Base Electronic de la construction de la construct	ironmental - 418 22	2001 Hoover Warren, US 480
Sample No. Lab Number Unique Number	Abnormal Abnormal Base Base Abnormal Abnormal C S S S S S S S S S S S S S	Received Diagnose Diagnost	l : 20 (ed : 20 (ician : We	(b)HOy bu) bu	Base Electronic de la construction de la construct	ironmental - 418 22 Con	3 - Metro/MI E 2001 Hoover Warren, US 480 tact: JIM HE ss@gflenv.cd

Contact/Location: JIM HESS - GFL418