

OIL ANALYSIS REPORT

{UNASSIGNED} 820050

Component **Diesel Engine** Fluid

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

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

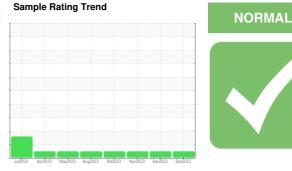
All component wear rates are normal.

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.



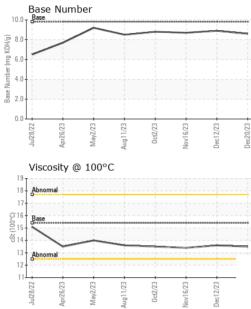


SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0098257	GFL0098221	GFL0098245
Sample Date		Client Info		20 Dec 2023	12 Dec 2023	16 Nov 2023
Machine Age	hrs	Client Info		7885	7820	7634
Oil Age	hrs	Client Info		7885	7820	7634
Oil Changed		Client Info		N/A	N/A	N/A
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	>100	6	5	11
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	<1	0	0
Titanium	ppm	ASTM D5185m		0	0	<1
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	2	2	2
Lead	ppm	ASTM D5185m	>40	0	0	0
Copper	ppm	ASTM D5185m	>330	1	0	6
Tin	ppm	ASTM D5185m	>15	0	0	0
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	<1
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 0	current 14	history1 15	history2 11
	ppm ppm					
Boron		ASTM D5185m	0	14	15	11
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	14 <1	15 0	11 <1
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	14 <1 62	15 0 58	11 <1 58
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	14 <1 62 <1	15 0 58 <1	11 <1 58 0
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	14 <1 62 <1 931	15 0 58 <1 901	11 <1 58 0 870
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	14 <1 62 <1 931 1144	15 0 58 <1 901 1111	11 <1 58 0 870 1031
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	14 <1 62 <1 931 1144 1152	15 0 58 <1 901 1111 1048	11 <1 58 0 870 1031 926
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	14 <1 62 <1 931 1144 1152 1286	15 0 58 <1 901 1111 1048 1273	11 <1 58 0 870 1031 926 1159
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	14 <1 62 <1 931 1144 1152 1286 3232	15 0 58 <1 901 1111 1048 1273 3256	11 <1 58 0 870 1031 926 1159 3329
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	14 <1 62 <1 931 1144 1152 1286 3232 current	15 0 58 <1 901 1111 1048 1273 3256 history1	11 <1 58 0 870 1031 926 1159 3329 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 method	0 0 60 1010 1070 1150 1270 2060	14 <1 62 <1 931 1144 1152 1286 3232 current 6	15 0 58 <1 901 1111 1048 1273 3256 history1 4	11 <1 58 0 870 1031 926 1159 3329 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 ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	14 <1 62 <1 931 1144 1152 1286 3232 current 6 5	15 0 58 <1 901 1111 1048 1273 3256 history1 4 1	11 <1 58 0 870 1031 926 1159 3329 history2 3 2
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 0 1010 1070 1150 1270 2060 Jimit/base >25	14 <1 62 <1 931 1144 1152 1286 3232 current 6 5 5	15 0 58 <1 901 1111 1048 1273 3256 history1 4 1 4	11 <1 58 0 870 1031 926 1159 3329 history2 3 2 10
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25	14 <1 62 <1 931 1144 1152 1286 3232 current 6 5 5 5	15 0 58 <1 901 1111 1048 1273 3256 history1 4 1 4 1 4 1 4	11 <1 58 0 870 1031 926 1159 3329 history2 3 2 10 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 ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3	14 <1 62 <1 931 1144 1152 1286 3232 current 6 5 5 current 0.3	15 0 58 <1 901 1111 1048 1273 3256 history1 4 1 4 1 4 1 4 1 0.2	11 <1 58 0 870 1031 926 1159 3329 history2 3 2 10 history2 0.3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm t ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 220 220 220 20 20 20 20 20 20 20 20 20	14 <1 62 <1 931 1144 1152 1286 3232 current 6 5 5 current 0.3 6.4	15 0 58 <1 901 1111 1048 1273 3256 history1 4 1 4 1 4 1 4 1 2 2 8	111 <1 58 0 870 1031 926 1159 3329 history2 3 2 10 history2 0.3 6.6
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 t ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 imit/base >3 >20	14 <1 62 <1 931 1144 1152 1286 3232 current 6 5 5 current 0.3 6.4 18.2	15 0 58 <1 901 1111 1048 1273 3256 history1 4 1 4 1 4 1 4 history1 0.2 5.8 17.9	11 <1 58 0 870 1031 926 1159 3329 history2 3 2 10 history2 0.3 6.6 18.6
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 TS ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 2060 225 20 220 220 20 3 20 20 20 20 20 20 20 20 20 20 20 20 20	14 <1 62 <1 931 1144 1152 1286 3232 <i>current</i> 6 5 5 <i>current</i> 0.3 6.4 18.2 <i>current</i>	15 0 58 <1 901 1111 1048 1273 3256 history1 4 1 4 1 4 0.2 5.8 17.9 history1	11 <1 58 0 870 1031 926 1159 3329 history2 3 2 10 history2 0.3 6.6 18.6 history2



OIL ANALYSIS REPORT

VISUAL



ESTING LABORATORY	Samp Lab N Unique Test I	•	: GFL009825 : 06043929 : 10804537 : FLEET	7	Recieveo Diagnos Diagnosi				GFL Environmental - 652 - Fredericksburg Haulin 10954 Houser Driv Fredericksburg, V US 2240 Contact: WILLIAM MIL wmilo@gflenv.com				
			Non-ferrou	us Meta ^{er} 100°C	Aug11/23 0ct2/23	Nav16/23 - Nov16/23 - Nov16/23 - Nov16/23 - Nov16/23 - Nov16/23 - Dec12/23 -	Dec20/23 Dec20/23 Dec20/23 Dec20/23 Dec20/23 Base Number (mg KOH(g)	10.0 Base	lumber 870704	Aug11/23	0et2/23	Deci 2/23	
Aug 11/23 +	Nov16/23	Dec12/23 -	Visc @ 100° GRAPHS Ferrous Al	S Ioys nium	cSt	ASTM D445	15.4	13.5		13.6		13.4	
		-	FLUID P	ROPE		method	limit/bas		rent	histor	ʻy1	histor	ry2
			Emulsified W Free Water	/ater	scalar scalar	*Visual *Visual	>0.2	NEG NEG		NEG NEG		NEG NEG	
Aug ¹ 1/23 +	Dec12// Dec20//	Appearance Odor		scalar scalar	*Visual *Visual	NORML NORML	NOR		NORM NORM		NORM NORM		
		Sand/Dirt		scalar	*Visual	NONE	NON		NONE		NONE		
		Debris		scalar	*Visual	NONE	NON		NONE		NONE		
		Silt		scalar	*Visual	NONE	NON	E	NONE		NONE		
		Precipitate		scalar	*Visual	NONE	NON	E	NONE		NONE		

Submitted By: TECHNICIAN ACCOUNT