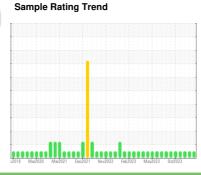


OIL ANALYSIS REPORT

(D582HW) 10681

Component **Diesel Engine**

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





DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

Contamination

There is no indication of any contamination in the

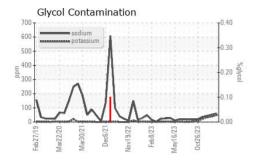
Fluid Condition

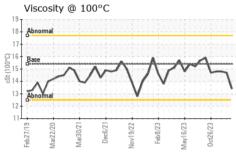
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

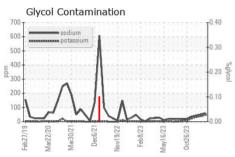
OAMBLE INCOR	AATION		11 14 1		11.	11
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0098935	GFL0098955	GFL0098995
Sample Date		Client Info		31 Jan 2024	03 Jan 2024	12 Dec 2023
Machine Age	hrs	Client Info		18948	18768	18476
Oil Age	hrs	Client Info		18768	18144	18616
Oil Changed		Client Info		N/A	Changed	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		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>75	20	41	30
Chromium	ppm	ASTM D5185m	>5	<1	<1	1
Nickel	ppm	ASTM D5185m	>4	0	0	<1
Titanium	ppm	ASTM D5185m	>2	0	0	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>15	2	2	2
Lead	ppm	ASTM D5185m	>25	0	<1	<1
Copper	ppm	ASTM D5185m	>100	1	<1	1
Tin	ppm	ASTM D5185m	>4	<1	0	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	<1
		or allegal	limit/base		In the Landson of	history2
ADDITIVES		method				HISTOLYZ
ADDITIVES Boron	ppm	ASTM D5185m	0	current	nistory i 0	<1 <1
	ppm	ASTM D5185m				
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	1	0	<1 12
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0	1 0 58	0 3 66	<1 12 65
Boron Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	1 0 58 <1	0	<1 12
Boron Barium Molybdenum	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	1 0 58 <1 935	0 3 66 0	<1 12 65 <1
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	1 0 58 <1 935 1216	0 3 66 0 1062 1196	<1 12 65 <1 976 1113
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	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	1 0 58 <1 935 1216 1044	0 3 66 0 1062 1196 1100	<1 12 65 <1 976 1113 1016
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	1 0 58 <1 935 1216	0 3 66 0 1062 1196	<1 12 65 <1 976 1113
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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270	1 0 58 <1 935 1216 1044 1275	0 3 66 0 1062 1196 1100	<1 12 65 <1 976 1113 1016 1269
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	1 0 58 <1 935 1216 1044 1275 3185	0 3 66 0 1062 1196 1100 1342 3427	<1 12 65 <1 976 1113 1016 1269 3159
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 0 1010 1070 1150 1270 2060	1 0 58 <1 935 1216 1044 1275 3185	0 3 66 0 1062 1196 1100 1342 3427 history1	<1 12 65 <1 976 1113 1016 1269 3159 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	1 0 58 <1 935 1216 1044 1275 3185 current	0 3 66 0 1062 1196 1100 1342 3427 history1	<1 12 65 <1 976 1113 1016 1269 3159 history2 8
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base	1 0 58 <1 935 1216 1044 1275 3185 current 7 60	0 3 66 0 1062 1196 1100 1342 3427 history1 9 50	<1 12 65 <1 976 1113 1016 1269 3159 history2 8 43
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base	1 0 58 <1 935 1216 1044 1275 3185 current 7 60	0 3 66 0 1062 1196 1100 1342 3427 history1 9 50 39	<1 12 65 <1 976 1113 1016 1269 3159 history2 8 43 33
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED	ppm	ASTM D5185m *ASTM D2982	0 0 60 0 1010 1150 1270 2060 limit/base >25 >20	1 0 58 <1 935 1216 1044 1275 3185 current 7 60 48 NEG	0 3 66 0 1062 1196 1100 1342 3427 history1 9 50 39 NEG	<1 12 65 <1 976 1113 1016 1269 3159 history2 8 43 33 NEG history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot %	ppm	ASTM D5185m *ASTM D2982 *Method *ASTM D7844	0 0 60 0 1010 1150 1270 2060 limit/base >25 >20	1 0 58 <1 935 1216 1044 1275 3185 current 7 60 48 NEG current	0 3 66 0 1062 1196 1100 1342 3427 history1 9 50 39 NEG history1 0.7	<1 12 65 <1 976 1113 1016 1269 3159 history2 8 43 33 NEG history2 0.6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration	ppm	ASTM D5185m *ASTM D7844 *ASTM D7844	0 0 60 0 1010 1150 1270 2060 limit/base >25 >20	1 0 58 <1 935 1216 1044 1275 3185 current 7 60 48 NEG current 0.4 8.8	0 3 66 0 1062 1196 1100 1342 3427 history1 9 50 39 NEG history1 0.7 12.5	<1 12 65 <1 976 1113 1016 1269 3159 history2 8 43 33 NEG history2 0.6 11.2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m *ASTM D7844 *ASTM D7624 *ASTM D7624	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20	1 0 58 <1 935 1216 1044 1275 3185 current 7 60 48 NEG current 0.4 8.8 19.9	0 3 66 0 1062 1196 1100 1342 3427 history1 9 50 39 NEG history1 0.7 12.5 24.9	<1 12 65 <1 976 1113 1016 1269 3159 history2 8 43 33 NEG history2 0.6 11.2 23.6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m METHOD ASTM D5185m *ASTM D7844 *ASTM D7844 *ASTM D7844 *ASTM D7844 *ASTM D7844 *ASTM D7844	0 0 60 0 1010 1150 1270 2060 limit/base >25 >20	1 0 58 <1 935 1216 1044 1275 3185 current 7 60 48 NEG current 0.4 8.8 19.9 current	0 3 66 0 1062 1196 1100 1342 3427 history1 9 50 39 NEG history1 0.7 12.5 24.9 history1	<1 12 65 <1 976 1113 1016 1269 3159 history2 8 43 33 NEG history2 0.6 11.2 23.6 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m *ASTM D7844 *ASTM D7624 *ASTM D7624	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20	1 0 58 <1 935 1216 1044 1275 3185 current 7 60 48 NEG current 0.4 8.8 19.9	0 3 66 0 1062 1196 1100 1342 3427 history1 9 50 39 NEG history1 0.7 12.5 24.9	<1 12 65 <1 976 1113 1016 1269 3159 history2 8 43 33 NEG history2 0.6 11.2 23.6



OIL ANALYSIS REPORT



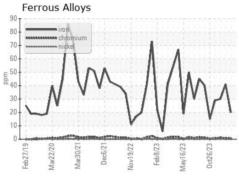


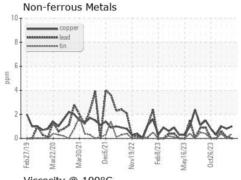


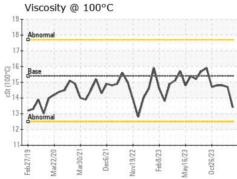
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

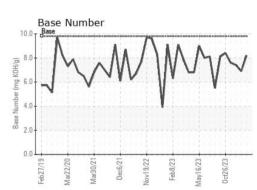
FLUID PROPI	ERHES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.4	14.7	14.8

GRAPHS













Laboratory Sample No. Lab Number : 06089875 Unique Number : 10882728

: GFL0098935

Received

Tested Diagnosed

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : 15 Feb 2024

: 19 Feb 2024 : 19 Feb 2024 - Jonathan Hester

GFL Environmental - 084 - Clarksville 699 Jack Miller Boulevard

Clarksville, TN US 37042

Contact: ROBERT THIBAULT robert.thibault@gflenv.com

T: (931)552-7276 F: (931)572-9674

Certificate L2367

Test Package: FLEET (Additional Tests: Glycol)

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)

Report Id: GFL084 [WUSCAR] 06089875 (Generated: 02/22/2024 23:30:35) Rev: 1

Submitted By: GFL084,GFL842,GFL844,GFL846 - ROBERT THIBAULT