

### **OIL ANALYSIS REPORT**

Sample Rating Trend

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# Machine Id 929089-205312

#### 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.

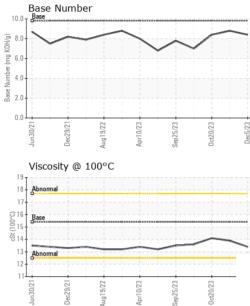
#### Fluid Condition

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

JAL)		Jun2021	Dec2021 Aug2022	Apr2023 Sep2023 Oct2023	Dec2023	
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0093605	GFL0093532	GFL0077242
Sample Date		Client Info		05 Dec 2023	08 Nov 2023	20 Oct 2023
Machine Age	hrs	Client Info		22693	22517	22381
Oil Age	hrs	Client Info		312	136	668
Oil Changed		Client Info		Not Changd	Not Changd	Changed
Sample Status				NORMAL	NORMAL	ABNORMAL
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	8	9	5
Chromium	ppm	ASTM D5185m	>20	<1	0	<1
Nickel	ppm	ASTM D5185m	>4	0	0	<1
Titanium	ppm	ASTM D5185m		6	0	1
Silver	ppm	ASTM D5185m	>3	0	0	<1
Aluminum	ppm	ASTM D5185m	>20	4	<1	3
Lead	ppm	ASTM D5185m	>40	1	0	2
Copper	ppm	ASTM D5185m	>330	3	2	10
Tin	ppm	ASTM D5185m	>15	0	0	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	<1
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	8	0	<1
Barium	ppm	ASTM D5185m	0	2	0	0
Molybdenum	ppm	ASTM D5185m	60	58	62	54
Manganese	ppm	ASTM D5185m	0	0	0	<1
Magnesium	ppm	ASTM D5185m	1010	887	1058	951
Calcium	ppm	ASTM D5185m	1070	1109	1175	977
Phosphorus	ppm	ASTM D5185m	1150	931	1153	908
Zinc	ppm	ASTM D5185m	1270	1174	1400	1193
Sulfur	ppm	ASTM D5185m	2060	3253	3461	2813
CONTAMINAN	ITS	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	10	4	8
Sodium	ppm	ASTM D5185m		2	3	6
Potassium	ppm	ASTM D5185m	>20	3	<1	4
INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	0.2	0.2	0.2
Nitration	Abs/cm	*ASTM D7624	>20	7.1	5.9	5.6
Sulfation	Abs/.1mm	*ASTM D7415	>30	19.1	18.3	17.8
FLUID DEGRAI	DATION	method	limit/base	current	history1	history2
		****	05			10 5
Oxidation	Abs/.1mm	*ASTM D7414	>25	14.9	14.1	13.5
Oxidation Base Number (BN)	Abs/.1mm mg KOH/g		>25 9.8	14.9 8.4	14.1 8.8	8.4



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	VISUA	۸L		me	ethod	limit/base	curi	rent	history1	l	history2
-	White Me	tal	scala	ar *Visi	ual	NONE	NON	E	NONE	ľ	NONE
	Yellow M	etal	scala	ar *Visi	ual	NONE	NON	Ε	NONE	1	NONE
	Precipitat	e	scala	ar *Visi	ual	NONE	NON	E	NONE	ľ	NONE
	Silt		scala	ar *Visi	ual	NONE	NON	Ε	NONE	ľ	NONE
	Debris		scala	ar *Visi	ual	NONE	NON	E	NONE	🔺 N	MODER
_	Sand/Dirt		scala	ar *Visi	ual	NONE	NON	E	NONE	1	NONE
Dec5/23	Appearar	nce	scala	ar *Visi	ual	NORML	NORI	ML	NORML	1	NORML
De	Odor		scala	ar *Visi	ual	NORML	NORI	ML	NORML	1	NORML
	Emulsifie	d Wate	r scala	ar *Visi	ual	>0.2	NEG		NEG	1	NEG
	Free Wat	er	scala	ar *Vis	ual		NEG		NEG	1	NEG
	FLUID	PRO	PERTIE	S me	ethod	limit/base	curi	rent	history1	1	history2
	Visc @ 1	00°C	cSt	AST	M D445	15.4	13.4		13.9	1	14.1
/	GRAP										
	Ferrous	Alloys									
	1	iron chromium									
	*********	nickel									
	20	/									
bhu	15			$\sim$							
	10		$\sim$								
	5				$\sim$						
	5	a state as a			V						
	0	7	22	23	Z3	23					
	0	Jecc/a//	ug 19/22	ep25/23	Dct20/23	Dec5/23					
	Jun30/21		Aprilo/23	Sep25/23	0ct20/23	Dec5/23					
	0			Sep25/23	0ct20/23	Dec5/23					
	Non-fer	rous M		Sep25/23	Oct20/23	Dec5/23					
	Non-fer	rous M		Sep25/23	0et20/23	Dec5/23					
	0 1200 Non-fer 50 40 	copper lead		Sep25/23	0ct20/23	Det5/23					
bpm	0 12000 Non-fer 50 40 30	copper lead		Sep25/23	Oct20/23	Dec5/23					
bpm	0 1200 Non-fer 50 40 	copper lead		Sep.25/23	0et20123	Dec5/23					
mqq	0 12000 Non-fer 50 40 30	copper lead		Sep 25/23	0et20/23	Dec5/23					
mqq	0 10 10 10 10 10 10 10 10 10 10 10 10 10	copper lead		Sep25/23	0012023	Dec5/23					
mqq	0 12/06 10 10 0 10 0 10 0 10 10 10 1	copper lead tin	letals	J							
mqq	0 12/06 10 10 0 10 0 10 0 10 10 10 1	copper lead tin	letals	J							
mqq	0 10 10 10 10 10 10 10 10 10 1	rous M	letals	25/5/dag	0et2023	Dec5/23					
wdd	0 12/06 10 10 0 10 0 10 0 10 10 10 1	rous M	letals	J		Dec5/23	Base N	lumbei	r		
mqq	Non-fer 10 10 10 10 10 10 10 10 10 10	rous M	letals	J		Dec5/23	Base No	lumbei	r		
uudd	0 10 10 10 10 10 10 10 10 10 1	rous M	letals	J		Dec2/53		lumber	r		
udd	0 10 10 10 10 10 10 10 10 10 1	rous M	letals	J		Dec2/53		lumber	r		
udd	0 10 10 10 10 10 10 10 10 10 1	rous M	letals	J		Dec2/53		lumber	r		
uudd	0 10 10 10 10 10 10 10 10 10 1	rous M	letals	J		Dec2/53		lumber	r		
cst (100°C)	0 10 10 10 10 10 10 10 10 10 1	rous M	letals	J		10.0 Bec5/23 10.0 H 9 H 10 H 10 H 10 H 10 H 10 H 10 H 10 H 10		lumber	r		
cst (100°C)	Non-fer Non-fer Viscosit 19 Non-fer Viscosit 19 Base 15 14	rous M	letals	J		1.0.1 1.0 (June Konk(d) 1.0 (June Konk(d)		lumber			
cst (100°C)	Non-fer Non-fer Viscosit 19 Abnomal 12 14 15 14 15 14 15 14 15 14 15 14 15 15 14 15 15 16 17 17 17 17 17 17 17 17 17 17	y @ 10	22061 Biny DO°°C	Sap25/23	Oct20/23	10.1 Berc2/23 Base Number (mg K0H(d) 2.1		~	$\frown$		
cst (100°C)	Non-fer Non-fer Viscosit 19 Abnomal 12 14 15 14 15 14 15 14 15 14 15 14 15 15 14 15 15 16 17 17 17 17 17 17 17 17 17 17	y @ 10	letals	J		10.1 Base Number (mg KDH/g) 5.1 Base Number (mg KDH/g) 5.1		Jumber	Aug19/22 Aug10/23 Apr10/23 Apr10/23 Apr10/23 Apr10/23 Apr10/23 Apr10/24 Apr	Sep 25/23	0et20/23



GFL Environmental - 891 - Oklahoma City Hauling 1001 South Rockwell Oklahoma City, OK US 73128 Contact: Andy Smith andrew.smith@gflenv.com T: (405)306-1651 06:2012) F:

: GFL0093605

: 06026096

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

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

Diagnostician : Wes Davis

Received

Diagnosed

: 06 Dec 2023

: 07 Dec 2023

Certificate L2367

Laboratory

Sample No.

Lab Number

Unique Number : 10775887

Test Package : FLEET