

# **OIL ANALYSIS REPORT**

### Sample Rating Trend





Machine Id **926060** Component **Diesel Engine** 

PETRO CANADA DURO

# 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

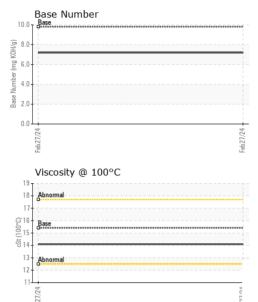
### **Fluid Condition**

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

Company   Comp	N SHP 15W40 (	GAL)			Feb2024		
Comparison	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Machine Age	Sample Number		Client Info		GFL0111928		
Dil Age	Sample Date		Client Info		27 Feb 2024		
Client Info   Changed   Client Info   Changed   Changed   Contamination   Co	Machine Age	hrs	Client Info		17648		
CONTAMINATION   method   minit/base   current   history1   history2	Oil Age	hrs	Client Info		0		
CONTAMINATION	Oil Changed		Client Info		Changed		
Tuel	Sample Status				NORMAL		
Water	CONTAMINAT	ION	method	limit/base	current	history1	history2
WEAR METALS	-uel		WC Method	>3.0	<1.0		
WEAR METALS         method         limit/base         current         history1         history2           ron         ppm         ASTM D5185m         >120         11             Chromium         ppm         ASTM D5185m         >20         0             Nickel         ppm         ASTM D5185m         >2         0             Silver         ppm         ASTM D5185m         >2         0             Aluminum         ppm         ASTM D5185m         >2         0             Aluminum         ppm         ASTM D5185m         >2         0             Aluminum         ppm         ASTM D5185m         >2         2             Lead         ppm         ASTM D5185m         >2         2             Copper         ppm         ASTM D5185m         0              Copper         ppm         ASTM D5185m         0               Cadmium         ppm         ASTM D5185m         0	Vater		WC Method	>0.2	NEG		
Concord	Glycol		WC Method		NEG		
Chromium	WEAR METAL	.S	method	limit/base	current	history1	history2
Silver	ron	ppm	ASTM D5185m	>120	11		
Silver	Chromium	ppm	ASTM D5185m	>20	0		
Silver	Nickel	ppm	ASTM D5185m	>5	0		
Ast   Ast	Γitanium	ppm	ASTM D5185m	>2	0		
Access	Silver	ppm	ASTM D5185m	>2			
ASTM D5185m   Sand D5185m	Aluminum	ppm	ASTM D5185m	>20	2		
Acade   Acad	ead	ppm	ASTM D5185m	>40			
Anadium         ppm         ASTM D5185m         0             Cadmium         ppm         ASTM D5185m         0             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         29             Barium         ppm         ASTM D5185m         0         0             Molybdenum         ppm         ASTM D5185m         60         69             Manganese         ppm         ASTM D5185m         0         0             Manganesium         ppm         ASTM D5185m         1010         966             Calcium         ppm         ASTM D5185m         1070         1262             Phosphorus         ppm         ASTM D5185m         1270         1295             Cinc         ppm         ASTM D5185m         2060         3567             CONTAMINANTS         method         limit/base         current         history	Copper	ppm	ASTM D5185m	>330	<1		
ADDITIVES	Γin	ppm		>15			
ADDITIVES	/anadium	ppm	ASTM D5185m		0		
Soron   ppm   ASTM D5185m   0   29	Cadmium	ppm	ASTM D5185m		0		
Sarium	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum         ppm         ASTM D5185m         60         69             Manganese         ppm         ASTM D5185m         0         0             Magnesium         ppm         ASTM D5185m         1010         966             Calcium         ppm         ASTM D5185m         1070         1262             Phosphorus         ppm         ASTM D5185m         1150         1065             Zinc         ppm         ASTM D5185m         1270         1295             Sulfur         ppm         ASTM D5185m         2060         3567             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         22             Godium         ppm         ASTM D5185m         20         0            Potassium         ppm         ASTM D5185m         20         0            Potassium         ppm         ASTM D5185m         20         0	Boron	ppm	ASTM D5185m	0	29		
Manganese         ppm         ASTM D5185m         0         0             Magnesium         ppm         ASTM D5185m         1010         966             Calcium         ppm         ASTM D5185m         1070         1262             Phosphorus         ppm         ASTM D5185m         1150         1065             Zinc         ppm         ASTM D5185m         1270         1295             Sulfur         ppm         ASTM D5185m         2060         3567             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4             Godium         ppm         ASTM D5185m         >20         0             Potassium         ppm         ASTM D5185m         >20         0             Potassium         ppm         ASTM D5185m         >20         0             Soot %         *ASTM D7844         >4	Barium	ppm	ASTM D5185m	0	0		
Magnesium         ppm         ASTM D5185m         1010         966             Calcium         ppm         ASTM D5185m         1070         1262             Phosphorus         ppm         ASTM D5185m         1150         1065             Zinc         ppm         ASTM D5185m         1270         1295             Sulfur         ppm         ASTM D5185m         2060         3567             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4             Potassium         ppm         ASTM D5185m         20         0             Potassium         ppm         ASTM D5185m         >20         0             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7624         >20         8.5             Sulfation         Abs/.1mm         *ASTM D7414	Molybdenum	ppm	ASTM D5185m	60	69		
Calcium         ppm         ASTM D5185m         1 0 70         1262             Phosphorus         ppm         ASTM D5185m         1150         1065             Zinc         ppm         ASTM D5185m         1270         1295             Sulfur         ppm         ASTM D5185m         2060         3567             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4             Sodium         ppm         ASTM D5185m         2             Potassium         ppm         ASTM D5185m         >20         0             Potassium         ppm         ASTM D5185m         >20         0             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.2             Silicon         Abs/.1mm         *ASTM D7415         >30	Manganese	ppm	ASTM D5185m	0	0		
Phosphorus         ppm         ASTM D5185m         1150         1065             Zinc         ppm         ASTM D5185m         1270         1295             Sulfur         ppm         ASTM D5185m         2060         3567             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4             Godium         ppm         ASTM D5185m         2             Potassium         ppm         ASTM D5185m         >20         0             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.2             Sulfation         Abs/.1mm         *ASTM D7415         >30         20.6             FLUID DEGRADATION         method         limit/base         current         history1         history2           Dxidation         Abs/.1mm         *ASTM D7414 <t< td=""><td>Magnesium</td><td>ppm</td><td>ASTM D5185m</td><td>1010</td><td>966</td><td></td><td></td></t<>	Magnesium	ppm	ASTM D5185m	1010	966		
Contamination   Contaminatio   Contamination   Contamination   Contamination   Contamination	Calcium	ppm	ASTM D5185m	1070	1262		
Sulfur         ppm         ASTM D5185m         2060         3567             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4             Godium         ppm         ASTM D5185m         2             Potassium         ppm         ASTM D5185m         >20         0             INFRA-RED         method         limit/base         current         history1         history2           Goot %         %         *ASTM D7844         >4         0.2             Sulfation         Abs/cm         *ASTM D7624         >20         8.5             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         17.5	Phosphorus	ppm	ASTM D5185m	1150	1065		
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4             Sodium         ppm         ASTM D5185m         2             Potassium         ppm         ASTM D5185m         >20         0            INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.2             Sulfration         Abs/cm         *ASTM D7624         >20         8.5             Sulfation         Abs/.1mm         *ASTM D7415         >30         20.6             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         17.5	Zinc	ppm	ASTM D5185m	1270	1295		
Solition   ppm   ASTM D5185m   >25   4	Sulfur	ppm	ASTM D5185m	2060	3567		
Sodium         ppm         ASTM D5185m         2             Potassium         ppm         ASTM D5185m         >20         0             INFRA-RED         method         limit/base         current         history1         history2           Goot %         %         *ASTM D7844         >4         0.2             Vitration         Abs/cm         *ASTM D7624         >20         8.5             Sulfation         Abs/.1mm         *ASTM D7415         >30         20.6             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         17.5	CONTAMINAN	ITS	method	limit/base	current	history1	history2
Potassium         ppm         ASTM D5185m         >20         0             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.2             Nitration         Abs/cm         *ASTM D7624         >20         8.5             Sulfation         Abs/.1mm         *ASTM D7415         >30         20.6             FLUID DEGRADATION         method         limit/base         current         history1         history2           Dxidation         Abs/.1mm         *ASTM D7414         >25         17.5	Silicon	ppm	ASTM D5185m	>25	4		
INFRA-RED	Sodium	ppm	ASTM D5185m		2		
Soot %         %         *ASTM D7844         >4         0.2             Nitration         Abs/cm         *ASTM D7624         >20         8.5             Sulfation         Abs/.1mm         *ASTM D7415         >30         20.6             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         17.5	Potassium	ppm	ASTM D5185m	>20	0		
Nitration         Abs/cm         *ASTM D7624         >20         8.5             Sulfation         Abs/.1mm         *ASTM D7415         >30         20.6             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         17.5	INFRA-RED		method	limit/base	current	history1	history2
Sulfation         Abs/.1mm         *ASTM D7415         >30         20.6             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         17.5	Soot %	%	*ASTM D7844	>4	0.2		
FLUID DEGRADATION method limit/base current history1 history2  Dxidation Abs/.1mm *ASTM D7414 >25 17.5	Nitration	Abs/cm	*ASTM D7624	>20	8.5		
Oxidation	Sulfation	Abs/.1mm	*ASTM D7415	>30	20.6		
	FLUID DEGRAI	DATION	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g   ASTM D2896   9.8   7.2	Oxidation	Abs/.1mm	*ASTM D7414	>25	17.5		
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	7.2		



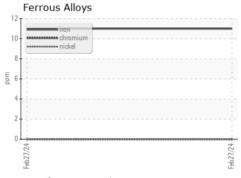
# **OIL ANALYSIS REPORT**



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

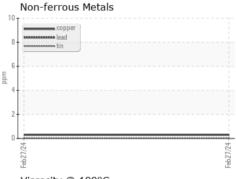
14.1

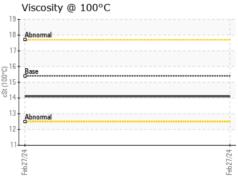
Visc @	100°C
GRA	PHS

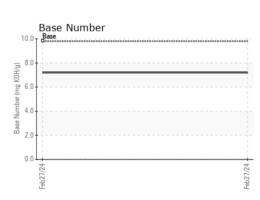


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ASTM D445 15.4











Certificate L2367

Laboratory Sample No.

Lab Number : 06127598 Unique Number : 10941749 Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0111928

Received **Tested** Diagnosed

: 25 Mar 2024 : 26 Mar 2024 : 26 Mar 2024 - Wes Davis

GFL Environmental - 959F - Clinton HC 9550 Heritage Rd

Clinton, IL US 61727

Contact: Larry Siegmann lsiegmann@gflenv.com T:

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)

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