

# **OIL ANALYSIS REPORT**

## Sample Rating Trend

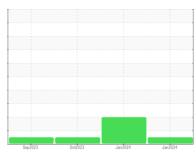
# **NORMAL**



# {UNASSIGNED} 934031 Component

**Natural Gas Engine** 

PETRO CANADA DURON SHP 15W40 (8)





## DIAGNOSIS

## Recommendation

Resample at the next service interval to monitor.

Metal levels are typical for a new component breaking in.

## Contamination

There is no indication of any contamination in the

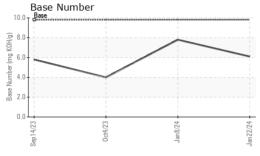
## **Fluid Condition**

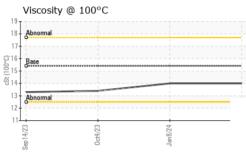
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Number   Client Info   Client Info	N 30P 13W40 (	,	Sep 2023	3 Oct2023	Jan 2024 J:	an 2024	
Sample Date   Client Info   22 Jan 2024   04 Oct	SAMPLE INFORM	NOITAN	method	limit/base	current	history1	history2
Machine Age   hrs   Client Info   287   153   293	ample Number		Client Info		GFL0109905	GFL0107262	GFL009788
Dil Age	ample Date		Client Info		22 Jan 2024	08 Jan 2024	04 Oct 2023
Not Changed Sample Status	achine Age	hrs	Client Info		880	746	293
NORMAL   ABNORMAL   NORMAL   NORMAL   CONTAMINATION   method   limit/base   current   history1	il Age	hrs	Client Info		287	153	293
CONTAMINATION         method         limit/base         current         history1         his           Water         WC Method         >0.1         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         his           Iron         ppm         ASTM D5185m         >50         21         15         44           Chromium         ppm         ASTM D5185m         >4         <1	il Changed		Client Info		Not Changd	Not Changd	Not Changd
Water         WC Method         >0.1         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         his           Iron         ppm         ASTM D5185m         >50         21         15         44           Chromium         ppm         ASTM D5185m         >4         <1         <1         0           Nickel         ppm         ASTM D5185m         >2         <1         <1         0           Nickel         ppm         ASTM D5185m         >2         <1         <1         0           Olickel         ppm         ASTM D5185m         >3         0         <1         0           Silver         ppm         ASTM D5185m         >3         0         <1         0           Aluminum         ppm         ASTM D5185m         >9         6         6         16         16           Lead         ppm         ASTM D5185m         >9         6         6         16         16           Lead         ppm         ASTM D5185m         >30         0         <1         0           Copper         ppm         ASTM D5185m         0         0 <th< td=""><td>ample Status</td><td></td><td></td><td></td><th>NORMAL</th><td>ABNORMAL</td><td>NORMAL</td></th<>	ample Status				NORMAL	ABNORMAL	NORMAL
WEAR METALS         method         limit/base         current         history1         hist           Iron         ppm         ASTM D5185m         >50         21         15         44           Chromium         ppm         ASTM D5185m         >4         <1	CONTAMINATI	ON	method	limit/base	current	history1	history2
Iron	'ater		WC Method	>0.1	NEG	NEG	NEG
Chromium         ppm         ASTM D5185m         ≥4         <1         <1         0           Nickel         ppm         ASTM D5185m         >2         <1	WEAR METALS	5	method	limit/base	current	history1	history2
Nickel	on	ppm	ASTM D5185m	>50	21	15	44
Description	hromium	ppm	ASTM D5185m	>4	<1	<1	0
Description	ickel		ASTM D5185m	>2	<1	<1	0
Silver	tanium		ASTM D5185m		0	0	0
Aluminum	lver		ASTM D5185m	>3	0		0
Lead	uminum						
Copper         ppm         ASTM D5185m         >35         4         3         16           Tin         ppm         ASTM D5185m         >4         <1					-		
Tin							
Vanadium         ppm         ASTM D5185m         0         <1         0           Cadmium         ppm         ASTM D5185m         0         <1         0           ADDITIVES         method         limit/base         current         history1         his           Boron         ppm         ASTM D5185m         0         <1         0         14           Barium         ppm         ASTM D5185m         0         0         0         0           Molybdenum         ppm         ASTM D5185m         0         0         0         0           Manganese         ppm         ASTM D5185m         0         2         2         12           Magnesium         ppm         ASTM D5185m         1010         953         934         691           Calcium         ppm         ASTM D5185m         1070         1120         1022         967           Phosphorus         ppm         ASTM D5185m         1270         1154         1260         829           Sulfur         ppm         ASTM D5185m         2060         2727         2981         2206           CONTAMINANTS         method         limit/base         current         history1         his	• •				-		
Cadmium         ppm         ASTM D5185m         0         <1         0           ADDITIVES         method         limit/base         current         history1         his           Boron         ppm         ASTM D5185m         0         <1				7			
ADDITIVES							
Boron		ррпп		limit/base			history2
Barium         ppm         ASTM D5185m         0         0         0         0           Molybdenum         ppm         ASTM D5185m         60         60         59         47           Manganese         ppm         ASTM D5185m         0         2         2         12           Magnesium         ppm         ASTM D5185m         1010         953         934         691           Calcium         ppm         ASTM D5185m         1070         1120         1022         967           Phosphorus         ppm         ASTM D5185m         1150         886         1000         682           Zinc         ppm         ASTM D5185m         1270         1154         1260         829           Sulfur         ppm         ASTM D5185m         2060         2727         2981         2206           CONTAMINANTS         method         limit/base         current         history1         his           Silicon         ppm         ASTM D5185m         >+100         7         7         32           Sodium         ppm         ASTM D5185m         >20         19         13         62           INFRA-RED         met							
Molybdenum         ppm         ASTM D5185m         60         60         59         47           Manganese         ppm         ASTM D5185m         0         2         2         12           Magnesium         ppm         ASTM D5185m         1010         953         934         691           Calcium         ppm         ASTM D5185m         1070         1120         1022         967           Phosphorus         ppm         ASTM D5185m         1150         886         1000         682           Zinc         ppm         ASTM D5185m         1270         1154         1260         829           Sulfur         ppm         ASTM D5185m         2060         2727         2981         2206           CONTAMINANTS         method         limit/base         current         history1         his           Silicon         ppm         ASTM D5185m         >+100         7         7         32           Sodium         ppm         ASTM D5185m         >20         19         13         62           INFRA-RED         method         limit/base         current         history1         his           Soot %         %         *ASTM D7844         0 <td></td> <td></td> <td></td> <td></td> <th></th> <td></td> <td></td>							
Manganese         ppm         ASTM D5185m         0         2         2         12           Magnesium         ppm         ASTM D5185m         1010         953         934         691           Calcium         ppm         ASTM D5185m         1070         1120         1022         967           Phosphorus         ppm         ASTM D5185m         1150         886         1000         682           Zinc         ppm         ASTM D5185m         1270         1154         1260         829           Sulfur         ppm         ASTM D5185m         2060         2727         2981         2206           CONTAMINANTS         method         limit/base         current         history1         his           Silicon         ppm         ASTM D5185m         >+100         7         7         32           Sodium         ppm         ASTM D5185m         >20         19         13         62           INFRA-RED         method         limit/base         current         history1         his           Soot %         %         *ASTM D7844         0         0         0           Nitration         Abs/cm         *ASTM D7845         >20         9.0 </td <td></td> <td></td> <td></td> <td></td> <th></th> <td></td> <td></td>							
Magnesium         ppm         ASTM D5185m         1010         953         934         691           Calcium         ppm         ASTM D5185m         1070         1120         1022         967           Phosphorus         ppm         ASTM D5185m         1150         886         1000         682           Zinc         ppm         ASTM D5185m         1270         1154         1260         829           Sulfur         ppm         ASTM D5185m         2060         2727         2981         2206           CONTAMINANTS         method         limit/base         current         history1         hist           Silicon         ppm         ASTM D5185m         >+100         7         7         32           Sodium         ppm         ASTM D5185m         >20         19         13         62           INFRA-RED         method         limit/base         current         history1         hist           Soot %         %         *ASTM D7844         0         0         0           Nitration         Abs/cm         *ASTM D7624         >20         9.0         7.7         10.1           Sulfation         Abs/.1mm         *ASTM D7415         >30	•						
Calcium         ppm         ASTM D5185m         1070         1120         1022         967           Phosphorus         ppm         ASTM D5185m         1150         886         1000         682           Zinc         ppm         ASTM D5185m         1270         1154         1260         829           Sulfur         ppm         ASTM D5185m         2060         2727         2981         2206           CONTAMINANTS         method         limit/base         current         history1         hist           Silicon         ppm         ASTM D5185m         >+100         7         7         32           Sodium         ppm         ASTM D5185m         >+100         7         7         32           Potassium         ppm         ASTM D5185m         >20         19         13         62           INFRA-RED         method         limit/base         current         history1         his           Soot %         %         *ASTM D7844         0         0         0           Nitration         Abs/cm         *ASTM D7624         >20         9.0         7.7         10.1           Sulfation         Abs/.1mm         *ASTM D7415         >30<	-				_		
Phosphorus         ppm         ASTM D5185m         1150         886         1000         682           Zinc         ppm         ASTM D5185m         1270         1154         1260         829           Sulfur         ppm         ASTM D5185m         2060         2727         2981         2206           CONTAMINANTS         method         limit/base         current         history1         his           Silicon         ppm         ASTM D5185m         >+100         7         7         32           Sodium         ppm         ASTM D5185m         >+100         7         7         32           Sodium         ppm         ASTM D5185m         >20         19         13         62           INFRA-RED         method         limit/base         current         history1         his           Soot %         %         *ASTM D7844         0         0         0           Nitration         Abs/cm         *ASTM D7624         >20         9.0         7.7         10.1           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.4         18.2         26.0           FLUID DEGRADATION         method         limit/base </td <td></td> <td></td> <td></td> <td></td> <th></th> <td></td> <td></td>							
Zinc         ppm         ASTM D5185m         1270         1154         1260         829           Sulfur         ppm         ASTM D5185m         2060         2727         2981         2206           CONTAMINANTS         method         limit/base         current         history1         his           Silicon         ppm         ASTM D5185m         >+100         7         7         32           Sodium         ppm         ASTM D5185m         6         2         5           Potassium         ppm         ASTM D5185m         >20         19         13         62           INFRA-RED         method         limit/base         current         history1         his           Soot %         %         *ASTM D7844         0         0         0           Nitration         Abs/cm         *ASTM D7624         >20         9.0         7.7         10.1           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.4         18.2         26.0           FLUID DEGRADATION         method         limit/base         current         history1         his           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.2 </td <td></td> <td></td> <td></td> <td></td> <th></th> <td></td> <td></td>							
Sulfur         ppm         ASTM D5185m         2060         2727         2981         2206           CONTAMINANTS         method         limit/base         current         history1         his           Silicon         ppm         ASTM D5185m         >+100         7         7         32           Sodium         ppm         ASTM D5185m         6         2         5           Potassium         ppm         ASTM D5185m         >20         19         13         62           INFRA-RED         method         limit/base         current         history1         his           Soot %         %         *ASTM D7844         0         0         0           Nitration         Abs/cm         *ASTM D7624         >20         9.0         7.7         10.1           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.4         18.2         26.0           FLUID DEGRADATION         method         limit/base         current         history1         his           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.2         15.5         27.0							
CONTAMINANTS         method         limit/base         current         history1         history1           Silicon         ppm         ASTM D5185m         >+100         7         7         32           Sodium         ppm         ASTM D5185m         6         2         5           Potassium         ppm         ASTM D5185m         >20         19         13         62           INFRA-RED         method         limit/base         current         history1         history1         history1         history1           Soot %         %         *ASTM D7844         0         0         0         0           Nitration         Abs/cm         *ASTM D7624         >20         9.0         7.7         10.1           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.4         18.2         26.0           FLUID DEGRADATION         method         limit/base         current         history1         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.2         15.5         27.0		ppm			_		
Silicon         ppm         ASTM D5185m         >+100         7         7         32           Sodium         ppm         ASTM D5185m         6         2         5           Potassium         ppm         ASTM D5185m         >20         19         13         62           INFRA-RED         method         limit/base         current         history1         his           Soot %         %         *ASTM D7844         0         0         0           Nitration         Abs/cm         *ASTM D7624         >20         9.0         7.7         10.1           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.4         18.2         26.0           FLUID DEGRADATION         method         limit/base         current         history1         his           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.2         15.5         27.0		• •	ASTM D5185m	2060	2727	2981	2206
Sodium         ppm         ASTM D5185m         6         2         5           Potassium         ppm         ASTM D5185m         >20         19         13         62           INFRA-RED         method         limit/base         current         history1         10.1         Sulfation         Abs/mm         *ASTM D7624         >20         9.0         7.7         10.1         10.1         Sulfation         Abs/mm         *ASTM D7415         >30         19.4         18.2         26.0           FLUID DEGRADATION         method         limit/base         current         history1         history1         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.2         15.5         27.0	CONTAMINANT	ΓS	method	limit/base	current		history2
Potassium         ppm         ASTM D5185m         >20         19         13         62           INFRA-RED         method         limit/base         current         history1         his           Soot %         %         *ASTM D7844         0         0         0           Nitration         Abs/cm         *ASTM D7624         >20         9.0         7.7         10.1           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.4         18.2         26.0           FLUID DEGRADATION         method         limit/base         current         history1         hist           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.2         15.5         27.0	licon	ppm	ASTM D5185m	>+100	7		
INFRA-RED	odium	ppm	ASTM D5185m		6	2	5
Soot %         %         *ASTM D7844         0         0         0           Nitration         Abs/cm         *ASTM D7624         >20         9.0         7.7         10.1           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.4         18.2         26.0           FLUID DEGRADATION         method         limit/base         current         history1         hist           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.2         15.5         27.0	otassium	ppm	ASTM D5185m	>20	19	13	62
Nitration         Abs/cm         *ASTM D7624         >20         9.0         7.7         10.1           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.4         18.2         26.0           FLUID DEGRADATION method limit/base current         history1         history1         history1         history1           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.2         15.5         27.0	INFRA-RED		method	limit/base	current	history1	history2
Sulfation         Abs/.1mm         *ASTM D7415         >30         19.4         18.2         26.0           FLUID DEGRADATION method limit/base current history1         history1         history1         history1         27.0           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.2         15.5         27.0	oot %	%	*ASTM D7844		0	0	0
FLUID DEGRADATION method limit/base current history1 history1 Oxidation Abs/.1mm *ASTM D7414 >25 16.2 15.5 27.0	tration	Abs/cm	*ASTM D7624	>20	9.0	7.7	10.1
Oxidation Abs/.1mm *ASTM D7414 >25 <b>16.2</b> 15.5 27.0	ulfation	Abs/.1mm	*ASTM D7415	>30	19.4	18.2	26.0
	FLUID DEGRAD	ATION	method	limit/base	current	history1	history2
Dana Namahan (DNI) wa KOUKa AOTM DOOGO OO	xidation	Abs/.1mm	*ASTM D7414	>25	16.2	15.5	27.0
Base Number (BN)   mg KUH/g   ASTM D2896   9.8   6.1   7.8   4.0	ase Number (BN)	mg KOH/g	ASTM D2896	9.8	6.1	7.8	4.0



# **OIL ANALYSIS REPORT**

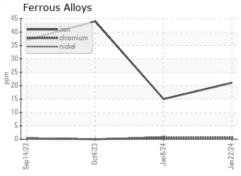


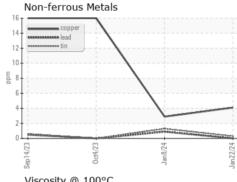


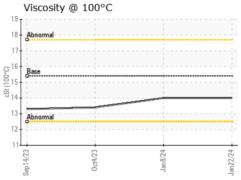
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	▲ MODER	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
<b>Emulsified Water</b>	scalar	*Visual	>0.1	NEG	0.2%	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

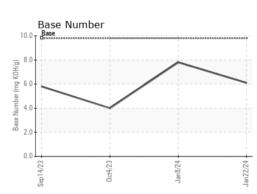
FLUID PROPE	EKIIES	method	ilmivbase		nistory i	nistory2
Visc @ 100°C	cSt	ASTM D445	15.4	14.0	14.0	13.4

## **GRAPHS**













Certificate L2367

Laboratory Sample No. Lab Number Unique Number : 10845998 Test Package : FLEET

: GFL0109905 : 06069321

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

: 24 Jan 2024 : 24 Jan 2024 Diagnostician : Wes Davis

GFL Environmental - 010 - Stockbridge 1280 Rum Creek Parkway

Stockbridge, GA US 30281

Contact: JOSHUA TINKER joshuatinker@gflenv.com

T: F:

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: GFL010 [WUSCAR] 06069321 (Generated: 01/24/2024 16:40:16) Rev: 1