

## **OIL ANALYSIS REPORT**

Sample Rating Trend





574M Component Diesel Engine

Machine Id

Fluid

#### PETRO CANADA DURON SHP 15W40 (5 GAL

### DIAGNOSIS Recommendation

Resample at the next service interval to monitor. ( Customer Sample Comment: Resample )

#### Wear

All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil.

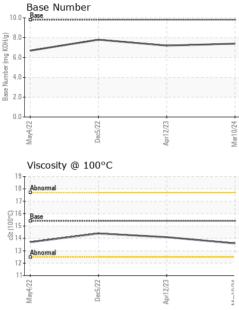
#### Fluid Condition

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

	ON SHP 15W40 (	5 GAL)	May202	2 Dec2022	Apr2023 M	w2024	
Sample Date         Client Info         10 Mar 2024         12 Apr 2023         05 Dec 2022           Wachine Age         hrs         Client Info         6627         5915         5192           Dil Age         hrs         Client Info         212         723         431           Dil Changed         Client Info         Not Changed         NORMAL         NO	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Machine Age         hrs         Client Info         6627         5915         5192           Di Age         hrs         Client Info         212         723         431           Di Changed         Client Info         NORMAL         NORMAL         NORMAL         NORMAL           Sample Status         I         Client Info         NORMAL         NORMAL         NORMAL         NORMAL           CONTAMINATION         method         3.0         <1.0	Sample Number		Client Info		GFL0115192	GFL0072962	GFL0060726
Dil Age     hrs     Client Info     212     723     431       Dil Changed     Client Info     Not Changed     Changed     Changed     Changed       Sample Status     Imilibase     current     history1     history2       Fuel     WC Method     >3.0     <1.0	Sample Date		Client Info		10 Mar 2024	12 Apr 2023	05 Dec 2022
Dil Changed sample Status     Client Info     Not Changed NORMAL     Changed NORMAL     Changed NORMAL     Changed NORMAL       CONTAMINATION     method     imil/base     current     history1     history2       Fuel     WC Method     >3.0     <1.0	Aachine Age	hrs	Client Info		6627	5915	5192
Sample Status         NORMAL         NORMAL         NORMAL         NORMAL           CONTAMINATION         method         imit/base         current         history1         history2           Fuel         WC Method         >3.0         <1.0	Dil Age	hrs	Client Info		212	723	431
CONTAMINATION         method         imit/base         current         history1         history2           Suel         WC Method         >3.0         <1.0	Dil Changed		Client Info		Not Changd	Changed	Changed
Fuel         WC Method         >3.0         <1.0         <1.0         <1.0           Water         WC Method         >0.2         NEG         NEG         NEG           Slycol         WC Method         Imit/base         current         history1         history2           wCAR METALS         method         limit/base         current         history1         history2           ron         ppm         ASTM D5185m         >20         <1	Sample Status				NORMAL	NORMAL	NORMAL
Water         WC Method         >0.2         NEG         NEG         NEG         NEG           Blycol         WC Method         Imit/base         current         history1         history2           ron         ppm         ASTM D5185m         >90         8         35         44           Chromium         ppm         ASTM D5185m         >20         <1	CONTAMINAT	ION	method	limit/base	current	history1	history2
Bilycol         WC Method         NEG         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         history2           ron         ppm         ASTM D5185m         >20         <1	uel		WC Method	>3.0	<1.0	<1.0	<1.0
WEAR METALS         method         limit/base         current         history1         history2           ron         ppm         ASTM D5185m         >90         8         35         44           Dromium         ppm         ASTM D5185m         >20         <1	Vater		WC Method	>0.2	NEG	NEG	NEG
ron         ppm         ASTM D5185m         >90         8         35         44           Chromium         ppm         ASTM D5185m         >20         <1	Glycol		WC Method		NEG	NEG	NEG
Dromium         ppm         ASTM D5185m         >20         <1         <1         2           Nickel         ppm         ASTM D5185m         >2         <1	WEAR METAL	.S	method	limit/base	current	history1	history2
Nuk         Ppm         ASTM D5185m         >2         <1         0         <1           Fitanium         ppm         ASTM D5185m         >2         0         0         <1	ron	ppm	ASTM D5185m	>90	8	35	44
Fittanium         ppm         ASTM D5185m         >2         0         0         <1           Silver         ppm         ASTM D5185m         >2         <1	Chromium	ppm	ASTM D5185m	>20	<1	<1	2
Silver         ppm         ASTM D5185m         >2         <1         0         0           Numinum         ppm         ASTM D5185m         >20         <1	Nickel	ppm	ASTM D5185m	>2	<1	0	<1
Numinum         ppm         ASTM D5185m         >20         <1         4         4           Lead         ppm         ASTM D5185m         >40         0         0         2           Copper         ppm         ASTM D5185m         >330         5         <1	Titanium	ppm	ASTM D5185m	>2	0	0	<1
Lead         ppm         ASTM D5185m         >40         0         0         2           Copper         ppm         ASTM D5185m         >330         5         <1	Silver	ppm	ASTM D5185m	>2	<1	0	0
Dopper         ppm         ASTM D5185m         >330         5         <1         2           Tin         ppm         ASTM D5185m         >15         <1	luminum	ppm	ASTM D5185m	>20	<1	4	4
In         ppm         ASTM D5185m         >15         <1         0         <1           Aranadium         ppm         ASTM D5185m         0         0         0         0           Cadmium         ppm         ASTM D5185m         0         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0         0         0         0           Adaganese         ppm         ASTM D5185m         0         0         0         0         0         0           Adagnesium         ppm         ASTM D5185m         0         <1	ead	ppm	ASTM D5185m	>40	0	0	2
Aranadium         ppm         ASTM D5185m         0         0         0           Cadmium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0         4         3           Barium         ppm         ASTM D5185m         0         0         4         3           Astrin         ppm         ASTM D5185m         0         0         0         0         0           Adaganesian         ppm         ASTM D5185m         0         <1         <1         <1           Adaganesium         ppm         ASTM D5185m         1010         916         975         996           Calcium         ppm         ASTM D5185m         1070         1001         1153         1202           Phosphorus         ppm         ASTM D5185m         1270         1216         1344         1421           Sulfur         ppm         ASTM D5185m         225         4         5         4           Soliton         ppm         ASTM D5185m         >20         2         4	Copper	ppm	ASTM D5185m	>330	5	<1	2
Deadmium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0         4         3           Barium         ppm         ASTM D5185m         0         0         0         0         0           Aolybdenum         ppm         ASTM D5185m         0         <1	īn	ppm	ASTM D5185m	>15	<1	0	<1
ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0         4         3           Barium         ppm         ASTM D5185m         0         0         0         0           Molybdenum         ppm         ASTM D5185m         60         58         62         64           Magnese         ppm         ASTM D5185m         0         <1	/anadium	ppm	ASTM D5185m		0	0	0
Boron         ppm         ASTM D5185m         0         0         4         3           Barium         ppm         ASTM D5185m         0         0         0         0         0           Malybdenum         ppm         ASTM D5185m         60         58         62         64           Manganese         ppm         ASTM D5185m         0         <1	Cadmium	ppm	ASTM D5185m		0	0	0
Barium         ppm         ASTM D5185m         0         0         0         0         0           Molybdenum         ppm         ASTM D5185m         60         58         62         64           Manganese         ppm         ASTM D5185m         0         <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum         ppm         ASTM D5185m         60         58         62         64           Manganese         ppm         ASTM D5185m         0         <1	Boron	ppm	ASTM D5185m	0	0	4	3
Manganese         ppm         ASTM D5185m         0         <1         <1         <1           Magnesium         ppm         ASTM D5185m         1010         916         975         996           Calcium         ppm         ASTM D5185m         1070         1001         1153         1202           Phosphorus         ppm         ASTM D5185m         1070         1003         1033         1048           Cinc         ppm         ASTM D5185m         1270         1216         1344         1421           Sulfur         ppm         ASTM D5185m         2060         3227         3284         3287           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         5         4           Sodium         ppm         ASTM D5185m         >20         0         3         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >6         0.5         0.6         1.1           Maration         Abs/.tmm         *ASTM D7415	Barium	ppm	ASTM D5185m	0	0	0	0
Agnesium         ppm         ASTM D5185m         1010         916         975         996           Calcium         ppm         ASTM D5185m         1070         1001         1153         1202           Phosphorus         ppm         ASTM D5185m         1070         1003         1033         1048           Zinc         ppm         ASTM D5185m         1270         1216         1344         1421           Sulfur         ppm         ASTM D5185m         2060         3227         3284         3287           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         5         4           Sodium         ppm         ASTM D5185m         >20         0         3         2           Potassium         ppm         ASTM D5185m         >20         0         3         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7624         >20         7.7         10.3         13.4           Soot %         %         *ASTM D7624         <	Nolybdenum	ppm	ASTM D5185m	60	58	62	64
Delacium         ppm         ASTM D5185m         1070         1001         1153         1202           Phosphorus         ppm         ASTM D5185m         1150         1003         1033         1048           Zine         ppm         ASTM D5185m         1270         1216         1344         1421           Sulfur         ppm         ASTM D5185m         2060         3227         3284         3287           CONTAMINANTS         method         limit/base         current         history1         history2           Solicon         ppm         ASTM D5185m         >25         4         5         4           Sodium         ppm         ASTM D5185m         >20         0         3         2           Potassium         ppm         ASTM D5185m         >20         0         3         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >6         0.5         0.6         1.1           Mitration         Abs/cm         *ASTM D7624         >20         7.7         10.3         13.4           Soulfation         Abs/.1mm         *ASTM D7415<	Nanganese	ppm	ASTM D5185m	0	<1	<1	<1
Phosphorus         ppm         ASTM D5185m         1150         1003         1033         1048           Zinc         ppm         ASTM D5185m         1270         1216         1344         1421           Sulfur         ppm         ASTM D5185m         2060         3227         3284         3287           CONTAMINANTS         method         limit/base         current         history1         history2           Solicon         ppm         ASTM D5185m         >25         4         5         4           Sodium         ppm         ASTM D5185m         >25         4         5         4           Sodium         ppm         ASTM D5185m         >20         0         3         2           Detassium         ppm         ASTM D5185m         >20         0         3         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >6         0.5         0.6         1.1           Mitration         Abs/cm         *ASTM D7624         >20         7.7         10.3         13.4           Soulfation         Abs/.1mm         *ASTM D7415	<i>I</i> lagnesium	ppm	ASTM D5185m	1010	916	975	996
Ppm         ASTM D5185m         1270         1216         1344         1421           Sulfur         ppm         ASTM D5185m         2060         3227         3284         3287           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         5         4           Sodium         ppm         ASTM D5185m         >20         0         3         2           Potassium         ppm         ASTM D5185m         >20         0         3         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >6         0.5         0.6         1.1           Jitration         Abs/cm         *ASTM D7624         >20         7.7         10.3         13.4           Soulfation         Abs/.1mm         *ASTM D7415         >30         19.2         21.7         25.7           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >2	Calcium	ppm	ASTM D5185m	1070	1001	1153	1202
SulfurppmASTM D5185m2060322732843287CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>25454SodiumppmASTM D5185m>20032PotassiumppmASTM D5185m>20032INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7844>60.50.61.1NitrationAbs/cm*ASTM D7624>207.710.313.4SulfationAbs/lm*ASTM D7415>3019.221.725.7FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2DxidationAbs/lmm*ASTM D7414>2515.219.222.7	Phosphorus	ppm	ASTM D5185m	1150	1003	1033	1048
CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>25454SodiumppmASTM D5185m242PotassiumppmASTM D5185m>20032INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7844>60.50.61.1NitrationAbs/cm*ASTM D7624>207.710.313.4SulfationAbs/cm*ASTM D7615>3019.221.725.7FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2DxidationAbs/Imm*ASTM D7414>2515.219.222.7	Zinc	ppm	ASTM D5185m	1270	1216	1344	1421
Silicon         ppm         ASTM D5185m         >25         4         5         4           Sodium         ppm         ASTM D5185m         20         2         4         2           Potassium         ppm         ASTM D5185m         >20         0         3         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >6         0.5         0.6         1.1           Soot %         %         *ASTM D7624         >20         7.7         10.3         13.4           Soulfation         Abs/cm         *ASTM D7624         >30         19.2         21.7         25.7           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         15.2         19.2         22.7	Sulfur	ppm	ASTM D5185m	2060	3227	3284	3287
Sodium         ppm         ASTM D5185m         2         4         2           Potassium         ppm         ASTM D5185m         >20         0         3         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >6         0.5         0.6         1.1           Mitration         Abs/cm         *ASTM D7624         >20         7.7         10.3         13.4           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.2         21.7         25.7           FLUID DEGRADATION         method         limit/base         current         history1         history2           Dxidation         Abs/.1mm         *ASTM D7414         >25         15.2         19.2         22.7	CONTAMINAN	ITS	method	limit/base	current	history1	history2
Potassium         ppm         ASTM D5185m         >20         0         3         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >6         0.5         0.6         1.1           Mitration         Abs/cm         *ASTM D7624         >20         7.7         10.3         13.4           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.2         21.7         25.7           FLUID DEGRADATION         method         limit/base         current         history1         history2           Dxidation         Abs/.1mm         *ASTM D7414         >25         15.2         19.2         22.7	Silicon	ppm	ASTM D5185m	>25	4	5	4
INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >6         0.5         0.6         1.1           Nitration         Abs/cm         *ASTM D7624         >20         7.7         10.3         13.4           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.2         21.7         25.7           FLUID DEGRADATION         method         limit/base         current         history1         history2           Dxidation         Abs/.1mm         *ASTM D7414         >25         15.2         19.2         22.7	Sodium	ppm	ASTM D5185m		2	4	2
Soot %         %         *ASTM D7844         >6         0.5         0.6         1.1           Nitration         Abs/cm         *ASTM D7624         >20         7.7         10.3         13.4           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.2         21.7         25.7           FLUID DEGRADATION         method         limit/base         current         history1         history2           Dxidation         Abs/.1mm         *ASTM D7414         >25         15.2         19.2         22.7	Potassium	ppm	ASTM D5185m	>20	0	3	2
Nitration         Abs/cm         *ASTM D7624         >20         7.7         10.3         13.4           Sulfation         Abs/.1mm         *ASTM D7615         >30         19.2         21.7         25.7           FLUID DEGRADATION         method         limit/base         current         history1         history2           Dxidation         Abs/.1mm         *ASTM D7414         >25         15.2         19.2         22.7	INFRA-RED		method	limit/base	current	history1	history2
Sulfation         Abs/.1mm         *ASTM D7415         >30         19.2         21.7         25.7           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         15.2         19.2         22.7	Soot %	%	*ASTM D7844	>6	0.5	0.6	1.1
FLUID DEGRADATION     method     limit/base     current     history1     history2       Dxidation     Abs/.1mm     *ASTM D7414     >25     15.2     19.2     22.7	Nitration	Abs/cm	*ASTM D7624	>20	7.7	10.3	13.4
Dxidation         Abs/.1mm         *ASTM D7414         >25         15.2         19.2         22.7	Sulfation	Abs/.1mm		>30	19.2		
	FLUID DEGRAI	DATION	method	limit/base	current	history1	history2
Base Number (BN)         mg KOH/g         ASTM D2896         9.8         7.4         7.2         7.8	Dxidation	Abs/.1mm	*ASTM D7414	>25	15.2	19.2	22.7
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	7.4	7.2	7.8



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	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
Mar10/24	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Marl	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
	Free Water	scalar	*Visual		NEG	NEG	NEG
	FLUID PROPE	RTIES	method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445	15.4	13.6	14.1	14.4
	GRAPHS						
	Ferrous Alloys						
VC	60 iron						
1012	50 - nickel						
4	40 -		_				
	Ē 30-						
	20						
	10-						
	22		/23	/24			
	May4/22 Dec5/22		Apr12/23	Mar10/24			
	Non-ferrous Meta	ls					
	10 copper						
	8 -						
	6- E			1			
	4						
	2						
	2- water and a state of the sta	And and a state of the state of					
		and and and in the state					
	May4/22 Dec5/22		Apr12/23	Mar10/24			
	≥ Uiscosity @ 100°C		A	Z			
	<sup>19</sup>	-		10	Base Numbe	r	
	18 - Abnormal						
	17-			(B/H	.0-		
	D <sup>16</sup> Base			Base Number (mg KOH/g)	.0		
	C2-16 Base 15 53 14			nber (n			
				- 4 - 4	.0		
	13 Abnormal			<sup>20</sup> 2	.0+		
	12						
	11-1-22		/23			- 122 -	/23+
	May4/22		Apr12/23	Mar10/24	May4/22	Dec5/22	Apr12/23 Mar10/24
		M NA!!		NO 07540			
aboratory. Sample No.	: WearCheck USA - 50 : GFL0115192	1 Madiso <b>Rece</b>		, NC 27513 8 Mar 2024	GFL E	nvironmental -	405 - Arbor Hills 7400 Napier Rd
	: 06116785	Teste		Mar 2024		N	ORTHVILLE, MI
	: 10925618	Diagu	nosed :14	Mar 2024 - Do	n Baldridge		US 48168



 Unique Number
 : 10925618
 Diagnosed
 : 14 Mar 2024 - Don Baldridge

 Certificate L2367
 Test Package
 : FLEET

 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: GFL405 [WUSCAR] 06116785 (Generated: 03/14/2024 14:03:58) Rev: 1

Submitted By: John Nahal

Contact: John Nahal

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T:

F: