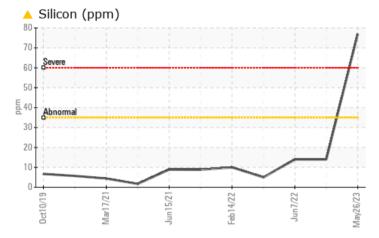


Sample Rating Trend

Machine Id **2713C** Component **Diesel Engine** Fluid

## PETRO CANADA DURON SHP 15W40 (11 GAL)

### COMPONENT CONDITION SUMMARY



### RECOMMENDATION

No corrective action is recommended at this time. We recommend an early resample to monitor this condition.

PROBLEMATIC TEST RESULTS							
Sample Status				ABNORMAL	NORMAL	NORMAL	
Silicon	ppm	ASTM D5185m	>35	<u> </u>	14	14	

Customer Id: GFL019 Sample No.: GFL0058796 Lab Number: 05862799 Test Package: FLEET



To manage this report scan the QR code

To discuss the diagnosis or test data: Jonathan Hester +1 919-379-4092 x4092 jhester@wearcheckusa.com

*To change component or sample information:* Customer Service +1 1-800-237-1369 <u>customerservice@wearcheck.com</u>

RECOMMENDED ACTIONS							
Action	Status	Date	Done By	Description			
Resample			?	We recommend an early resample to monitor this condition.			

### HISTORICAL DIAGNOSIS

### NORMAL



Resample at the next service interval to monitor.All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.



view report

#### 07 Jun 2022 Diag: Jonathan Hester

03 Aug 2022 Diag: Doug Bogart



Resample at the next service interval to monitor.All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

GLYCOL

#### 03 Mar 2022 Diag: Don Baldridge

No corrective action is recommended at this time. We recommend an early resample to monitor this condition.All component wear rates are normal. Sodium and/or potassium levels are high. Test for glycol is negative. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.









# **OIL ANALYSIS REPORT**



DIRT



### Diesel Engine

Fluid

### PETRO CANADA DURON SHP 15W40 (11 GAL)

### DIAGNOSIS

### Recommendation

No corrective action is recommended at this time. We recommend an early resample to monitor this condition.

### Wear

All component wear rates are normal.

#### Contamination

Elemental level of silicon (Si) above normal indicating ingress of seal material.

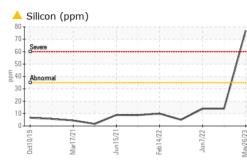
### Fluid Condition

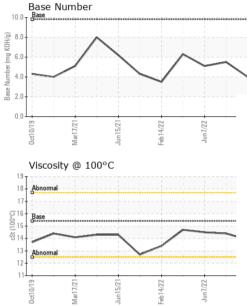
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

JAL)		Oct2019	Mar2021 Jun2021	Feb2022 Jun2022	May2023	
SAMPLE INFORM	<b>MATION</b>	method	limit/base	current	history 1	history 2
Sample Number		Client Info		GFL0058796	GFL0039425	GFL0020031
Sample Date		Client Info		26 May 2023	03 Aug 2022	07 Jun 2022
Machine Age	hrs	Client Info	7556		0	7556
Oil Age	hrs	Client Info	2772		0	2772
Oil Changed		Client Info	N/A		N/A	N/A
Sample Status				ABNORMAL	NORMAL	NORMAL
CONTAMINATI	ON	method	limit/base	current	history 1	history 2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS	S	method	limit/base	current	history 1	history 2
Iron	ppm	ASTM D5185m	>165	23	25	30
Chromium	ppm	ASTM D5185m	>5	3	5	4
Nickel	ppm	ASTM D5185m	>4	1	<1	0
Titanium	ppm	ASTM D5185m	>2	<1	<1	<1
Silver	ppm	ASTM D5185m	>2	<1	<1	<1
Aluminum	ppm	ASTM D5185m	>20	3	2	4
Lead	ppm	ASTM D5185m	>150	2	3	2
Copper	ppm	ASTM D5185m	>90	2	2	3
Tin	ppm	ASTM D5185m	>5	<1	1	<1
Antimony	ppm	ASTM D5185m				
Vanadium						-
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm ppm	ASTM D5185m ASTM D5185m		<1 0	0	0
			limit/base			
Cadmium		ASTM D5185m	limit/base	0	0	0
Cadmium ADDITIVES	ppm	ASTM D5185m method		0 current	0 history 1	0 history 2
Cadmium ADDITIVES Boron	ppm ppm	ASTM D5185m method ASTM D5185m	0	0 current 5	0 history 1 17	0 history 2 13
Cadmium ADDITIVES Boron Barium	ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m	0	0 current 5 0	0 history 1 17 0	0 history 2 13 2
Cadmium ADDITIVES Boron Barium Molybdenum	ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	0 current 5 0 64	0 history 1 17 0 53	0 history 2 13 2 51
Cadmium ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	0 current 5 0 64 3	0 history 1 17 0 53 <1	0 history 2 13 2 51 <1
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	0 current 5 0 64 3 787	0 history 1 17 0 53 <1 556	0 history 2 13 2 51 <1 468
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	0 current 5 0 64 3 787 1370	0 history 1 17 0 53 <1 556 1466	0 history 2 13 2 51 <1 468 1496
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	0 current 5 0 64 3 787 1370 916	0 history 1 17 0 53 <1 556 1466 703	0 history 2 13 2 51 <1 468 1496 640
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270	0 current 5 0 64 3 787 1370 916 1260	0 history 1 17 0 53 <1 556 1466 703 933	0 history 2 13 2 51 <1 468 1496 640 917
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method 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	0 current 5 0 64 3 787 1370 916 1260 3035	0 history 1 17 0 53 <1 556 1466 703 933 2397	0 history 2 13 2 51 <1 468 1496 640 917 2132
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	0 current 5 0 64 3 787 1370 916 1260 3035 current	0 history 1 17 0 53 <1 556 1466 703 933 2397 history 1	0 history 2 13 2 51 <1 468 1496 640 917 2132 history 2
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	0 current 5 0 64 3 787 1370 916 1260 3035 current ▲ 77	0 history 1 17 0 53 <1 556 1466 703 933 2397 history 1 14	0 history 2 13 2 51 <1 468 1496 640 917 2132 history 2 14
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm	ASTM D5185m method 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 Iimit/base >35	0 current 5 0 64 3 787 1370 916 1260 3035 current ∧ 77 27	0 history 1 17 0 53 <1 556 1466 703 933 2397 history 1 14 39	0 history 2 13 2 51 <1 468 1496 640 917 2132 history 2 14 30
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm	ASTM D5185m method ASTM D5185m 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 <b>limit/base</b> >35	0 current 5 0 64 3 787 1370 916 1260 3035 current ▲ 77 27 24	0 history 1 17 0 53 <1 556 1466 703 933 2397 history 1 14 39 6	0 history 2 13 2 51 <1 468 1496 640 917 2132 history 2 14 30 5
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m Method ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >35 >20	0 current 5 0 64 3 787 1370 916 1260 3035 current ↓ 77 27 24 current	0 history 1 17 0 53 <1 556 1466 703 933 2397 history 1 14 39 6 history 1	0 history 2 13 2 51 <1 468 1496 640 917 2132 history 2 14 30 5 5 history 2
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm   ppm   ppm	ASTM D5185m Method ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 Imit/base >35 >20 Imit/base >7.5	0 current 5 0 64 3 787 1370 916 1260 3035 current ✓ 77 27 24 current 0	0 history 1 17 0 53 <1 556 1466 703 933 2397 history 1 14 39 6 history 1 0.1	0 history 2 13 2 51 <1 468 1496 640 917 2132 history 2 14 30 5 5 history 2 0.1
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>Imit/base</b> >35 >20 <b>Imit/base</b> >7.5 >20	0 current 5 0 64 3 787 1370 916 1260 3035 current ▲ 77 27 24 current 0 10.3	0 history 1 17 0 53 <1 556 1466 703 933 2397 history 1 14 39 6 history 1 0.1 0.1 11.2	0 history 2 13 2 51 <1 468 1496 640 917 2132 history 2 14 30 5 5 history 2 0.1 10.9
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185	0 0 0 1010 1070 1150 1270 2060 <b>Iimit/base</b> >35 >20 <b>Iimit/base</b> >7.5 >20 >30	0 current 5 0 64 3 787 1370 916 1260 3035 current ↓ 77 27 24 current 0 10.3 23.7	0 history 1 17 0 53 <1 556 1466 703 933 2397 history 1 14 39 6 history 1 0.1 0.1 11.2 25.0	0 history 2 13 2 51 <1 468 1496 640 917 2132 history 2 14 30 5 history 2 0.1 10.9 21.1



# **OIL ANALYSIS REPORT**





	VISUAL		method	limit/base	e current	history 1	history 2
/	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
Jun7/22 -	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Jun7/22 May26/23	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	ERTIES	method	limit/base	e current	history 1	history 2
$\sim$	Visc @ 100°C	cSt	ASTM D445	15.4	13.9	14.4	14.5
	GRAPHS						
	Ferrous Alloys						
	<sup>30</sup> T	1	Ν				
Jun7/22	25 - iron chromium						
Jur	20 -						
	ត្ត15-	/	V				
	10-	/	V				
	5- /	/					
	0	STATES OF THE OWNER	and a state of the				
	m =	Jun15/21- Feb14/22 -	Jun7/22 -	6/23 -			
	0ct10/19 Mar17/2	Jun15/2 Feb14/22	Jun	May26/23			
	Non-ferrous Meta	als					
Jun7/22	70 copper	A					
٦٢	60 - Internet lead	/					
	50-	1	1				
	40- 30-		1				
	<sup>2</sup> 30-	-/	1				
	20 -	/					
	10	1	1				
	0ct10/19 Mar17/21	Jun15/21 Feb14/22	Jun7/22	May26/23			
			Ju	May			
	Viscosity @ 100°	С			Base Number	-	
	18 - Abnormal			1	0.0 Base		
	17+	4			8.0-		
-				Base Number (mg KOH/g)			
6	Base 15 3 14			ar (mg	6.0		$\sim$
č	ž <sub>14</sub>			lumbe	4.0	$\sim$	
	13 - Abnormal	$\checkmark$		Sase N			
	12		· · · · · · · · · · ·		2.0 -		
	11		~		0.0		
	0ct10/19 Mar17/21	Jun 15/21 Feb 14/22	Jun7/22	May26/23	0ct10/19 Mar17/21	Jun 15/21 Feb 14/22	Jun7/22 May26/23
	0c M₹	리 권	٦٢	Ma	0c	Ju Ja	Jı, Ma
Laboratory	: WearCheck USA -	501 Madi	son Ave., Ca	ry, NC 275 <sup>-</sup>	13 GFL Env	vironmental - 019 -	Greenville/TriEast
Sample No.	: GFL0058796	Received	d : 02 .	Jun 2023			15 Staton Road
Lab Number	: 05862799	Diagnos		Jun 2023			Greenville, NC
Unique Number	: 10497264 : FLEET	Diagnos	tician : Jon	athan Hest	er	Contact	US 27834
Test Package	: FLEET	vice at 1-8	200-237-1360	2			Spencer Liggon



\* - 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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spencer.liggon@gflenv.com

T: (800)207-6618

F: