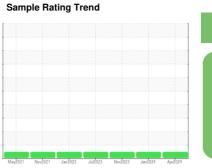


# **OIL ANALYSIS REPORT**









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

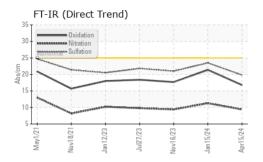
### **Fluid Condition**

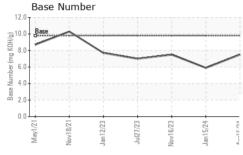
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

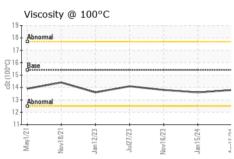
Sample Date	SAMPLE INFO	RMATION	method	limit/base	current	history1	history2
Machine Age   hrs   Client Info   12475   12058   11651   10898   11691   10898   11651   10899   1088   11651   10898   11651   10899   1088   11651   10898   11651   10898   11651   10898   11651   10899   1088   11651   10898   11651   10898   11651   10899   1088   11651   10898   11651   10898   11651   10899   1088   11651   10898   11651   10898   11651   10898   11651   10899   1088   11651   10898   11651   10898   11651   10898   11651   10899   1088   11651   10898   11651   10898   11651   10899   1088   11651   10898   11651   10899   1088   11651   10898   11651   10899   1088   11651   115019   115019   115019   115019   115019   115019   115019   115019   115019   115019   116510   10888   116510   10898   116510   10898   116510   10898   116510   10898	Sample Number		Client Info		GFL0117591	GFL0108839	GFL0101529
Oil Age         hrs         Client Info         12058         11651         10898           Oil Changed Sample Status         Client Info         Changed Chan	Sample Date		Client Info		15 Apr 2024	15 Jan 2024	16 Nov 2023
Oil Changed Sample Status         Client Info NORMAL         Changed NORMAL         Normal         Astronged Normal         Astronge Normal         Astronge Normal         Astronge Normal         Astronge Normal <t< td=""><td>Machine Age</td><td>hrs</td><td>Client Info</td><td></td><th>12475</th><td>12058</td><td>11651</td></t<>	Machine Age	hrs	Client Info		12475	12058	11651
Oil Changed Sample Status         Client Info NORMAL         Changed NORMAL         Normal         Astronged Normal         Astronge Normal         Astronge Normal         Astronge Normal         Astronge Normal <t< td=""><td></td><td>hrs</td><td>Client Info</td><td></td><th>12058</th><td>11651</td><td>10898</td></t<>		hrs	Client Info		12058	11651	10898
NORMAL   NORMAL   NORMAL   CONTAMINATION   method   limit/base   current   history1   history2	•						
Fuel			0				
Water         WC Method         >0.2         NEG         NEG         NEG           Glycol         WC Method         Imit/base         current         history1         history2           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >75         20         45         28           Chromium         ppm         ASTM D5185m         >5         1         2         1           Nickel         ppm         ASTM D5185m         >4         1         <1	CONTAMINA	TION	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Glycol         WC Method         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >75         20         45         28           Chromium         ppm         ASTM D5185m         >5         1         2         1           Nickel         ppm         ASTM D5185m         >4         1         <1         <1           Silver         ppm         ASTM D5185m         >2         <1         <1         <1           Silver         ppm         ASTM D5185m         >2         <1         0         <1           Aluminum         ppm         ASTM D5185m         >2         <1         0         <1         <1           Lead         ppm         ASTM D5185m         >100         2         3         2           Tin         ppm         ASTM D5185m         >4         1         <1         0           Capper         ppm         ASTM D5185m         >4         1         <1         0           Capper         ppm         ASTM D5185m         0         0         2	Water		WC Method	>0.2	NEG	NEG	NEG
Irron	Glycol		WC Method		NEG	NEG	
Chromium         ppm         ASTM D5185m         >5         1         2         1           Nickel         ppm         ASTM D5185m         >4         1         <1	WEAR META	LS	method	limit/base	current	history1	history2
Chromium         ppm         ASTM D5185m         >5         1         2         1           Nickel         ppm         ASTM D5185m         >4         1         <1	Iron	ppm	ASTM D5185m	>75	20	45	28
Nickel	Chromium		ASTM D5185m	>5	1	2	1
Titanium							
Silver							
Aluminum							
Lead         ppm         ASTM D5185m         >25         1         1         <1         <1         Copper         ppm         ASTM D5185m         >100         2         3         2         2         3         2         100         2         3         2         2         3         2         2         3         2         2         3         2         2         1         0         0         0         2         0         0         2         1         0							
Copper         ppm         ASTM D5185m         >100         2         3         2           Tin         ppm         ASTM D5185m         >4         1         <1							
Tin ppm ASTM D5185m >4 1 <1 0 Vanadium ppm ASTM D5185m   <1 <1 0 Cadmium ppm ASTM D5185m   1 0 0  ADDITIVES   method   limit/base   current   history1   history2 Boron   ppm ASTM D5185m   0 0 0 2 0 Barium   ppm ASTM D5185m   0 0 0 <1 0 Molybdenum   ppm ASTM D5185m   60 0 59 63 62 Manganese   ppm ASTM D5185m   0 0 1 0 0 Magnesium   ppm ASTM D5185m   1010 0 870 1039 911   Calcium   ppm ASTM D5185m   1070 1027 1137 1078 Phosphorus   ppm ASTM D5185m   1270 1159 1348 1203 Sulfur   ppm ASTM D5185m   2060 2926 2839 2660  CONTAMINANTS   method   limit/base   current   history1   history2 Silicon   ppm ASTM D5185m   >25 4 7 5 Sodium   ppm ASTM D5185m   >20 2 2 3 3   INFRA-RED   method   limit/base   current   history1   history2 Soot % % 'ASTM D7844   >6 0.5 1 0.6 Nitration   Abs/cm 'ASTM D7845 >20 9.4 11.3 9.4 Sulfation   Abs/cm 'ASTM D7845 >20 9.4 11.3 9.4 Sulfation   Abs/cm 'ASTM D7845 >30 19.8 23.5 21.0  FLUID DEGRADATION   method   limit/base   current   history1   history2 Oxidation   Abs/cm 'ASTM D7841 >25 16.8 21.4 17.7		- ' '					
Vanadium         ppm         ASTM D5185m         <1         <1         0           Cadmium         ppm         ASTM D5185m         1         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0         2         0           Barium         ppm         ASTM D5185m         0         0         <1         0           Molybdenum         ppm         ASTM D5185m         0         0         <1         0           Magnesium         ppm         ASTM D5185m         0         1         <1         0           Magnesium         ppm         ASTM D5185m         1070         1027         1137         1078           Phosphorus         ppm         ASTM D5185m         1150         990         1088         984           Zinc         ppm         ASTM D5185m         1270         1159         1348         1203           Sulfur         ppm         ASTM D5185m         2060         2926         2839         2660           CONTAMINANTS         method         limit/base         current         history1 <t< td=""><td></td><td></td><td></td><td></td><th></th><td></td><td></td></t<>							
Cadmium         ppm         ASTM D5185m         1         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0         2         0           Barium         ppm         ASTM D5185m         0         0         <1		- ' '		>4			
ADDITIVES		ppm					
Boron	Cadmium	ppm	ASTM D5185m		1	0	0
Barium         ppm         ASTM D5185m         0         0         <1         0           Molybdenum         ppm         ASTM D5185m         60         59         63         62           Manganese         ppm         ASTM D5185m         0         1         <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum         ppm         ASTM D5185m         60         59         63         62           Manganese         ppm         ASTM D5185m         0         1         <1         0           Magnesium         ppm         ASTM D5185m         1010         870         1039         911           Calcium         ppm         ASTM D5185m         1070         1027         1137         1078           Phosphorus         ppm         ASTM D5185m         1150         990         1088         984           Zinc         ppm         ASTM D5185m         1270         1159         1348         1203           Sulfur         ppm         ASTM D5185m         2060         2926         2839         2660           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         7         5           Sodium         ppm         ASTM D5185m         >20         2         2         3           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7624 <t< td=""><td>Boron</td><td>ppm</td><td>ASTM D5185m</td><td>0</td><th></th><td>2</td><td>0</td></t<>	Boron	ppm	ASTM D5185m	0		2	0
Manganese         ppm         ASTM D5185m         0         1         <1         0           Magnesium         ppm         ASTM D5185m         1010         870         1039         911           Calcium         ppm         ASTM D5185m         1070         1027         1137         1078           Phosphorus         ppm         ASTM D5185m         1150         990         1088         984           Zinc         ppm         ASTM D5185m         1270         1159         1348         1203           Sulfur         ppm         ASTM D5185m         2060         2926         2839         2660           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         7         5           Sodium         ppm         ASTM D5185m         >20         2         2         3           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7624         >20         9.4         11.3         9.4           Sulfation         Abs/.1mm         *ASTM D7415	Barium	ppm	ASTM D5185m	0	0	<1	0
Magnesium         ppm         ASTM D5185m         1010         870         1039         911           Calcium         ppm         ASTM D5185m         1070         1027         1137         1078           Phosphorus         ppm         ASTM D5185m         1150         990         1088         984           Zinc         ppm         ASTM D5185m         1270         1159         1348         1203           Sulfur         ppm         ASTM D5185m         2060         2926         2839         2660           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         7         5           Sodium         ppm         ASTM D5185m         >20         2         2         3           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >6         0.5         1         0.6           Nitration         Abs/cm         *ASTM D7415         >30         19.8         23.5         21.0           FLUID DEGRADATION         *ASTM D7414 <t< td=""><td>Molybdenum</td><td>ppm</td><td>ASTM D5185m</td><td>60</td><th>59</th><td>63</td><td>62</td></t<>	Molybdenum	ppm	ASTM D5185m	60	59	63	62
Calcium         ppm         ASTM D5185m         1070         1027         1137         1078           Phosphorus         ppm         ASTM D5185m         1150         990         1088         984           Zinc         ppm         ASTM D5185m         1270         1159         1348         1203           Sulfur         ppm         ASTM D5185m         2060         2926         2839         2660           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         7         5           Sodium         ppm         ASTM D5185m         >20         2         2         3           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >6         0.5         1         0.6           Nitration         Abs/cm         *ASTM D7624         >20         9.4         11.3         9.4           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.8         23.5         21.0           FLUID DEGRADATION         method	Manganese	ppm	ASTM D5185m	0	1	<1	0
Phosphorus         ppm         ASTM D5185m         1150         990         1088         984           Zinc         ppm         ASTM D5185m         1270         1159         1348         1203           Sulfur         ppm         ASTM D5185m         2060         2926         2839         2660           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         7         5           Sodium         ppm         ASTM D5185m         6         8         4           Potassium         ppm         ASTM D5185m         >20         2         2         3           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >6         0.5         1         0.6           Nitration         Abs/cm         *ASTM D7415         >30         19.8         23.5         21.0           FLUID DEGRADATION         *ASTM D7414         >25         16.8         21.4         17.7	Magnesium	ppm	ASTM D5185m	1010	870	1039	911
Zinc         ppm         ASTM D5185m         1270         1159         1348         1203           Sulfur         ppm         ASTM D5185m         2060         2926         2839         2660           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         7         5           Sodium         ppm         ASTM D5185m         6         8         4           Potassium         ppm         ASTM D5185m         >20         2         2         3           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >6         0.5         1         0.6           Nitration         Abs/cm         *ASTM D7624         >20         9.4         11.3         9.4           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.8         23.5         21.0           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D741	Calcium	ppm	ASTM D5185m	1070	1027	1137	1078
Zinc         ppm         ASTM D5185m         1270         1159         1348         1203           Sulfur         ppm         ASTM D5185m         2060         2926         2839         2660           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         7         5           Sodium         ppm         ASTM D5185m         6         8         4           Potassium         ppm         ASTM D5185m         >20         2         2         3           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >6         0.5         1         0.6           Nitration         Abs/cm         *ASTM D7624         >20         9.4         11.3         9.4           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.8         23.5         21.0           FLUID DEGRADATION method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414 <t< td=""><td>Phosphorus</td><td></td><td>ASTM D5185m</td><td>1150</td><th>990</th><td>1088</td><td>984</td></t<>	Phosphorus		ASTM D5185m	1150	990	1088	984
Sulfur         ppm         ASTM D5185m         2060         2926         2839         2660           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         7         5           Sodium         ppm         ASTM D5185m         6         8         4           Potassium         ppm         ASTM D5185m         >20         2         2         3           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >6         0.5         1         0.6           Nitration         Abs/cm         *ASTM D7624         >20         9.4         11.3         9.4           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.8         23.5         21.0           FLUID DEGRADATION method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.8         21.4         17.7			ASTM D5185m	1270	1159	1348	1203
Silicon         ppm         ASTM D5185m         >25         4         7         5           Sodium         ppm         ASTM D5185m         6         8         4           Potassium         ppm         ASTM D5185m         >20         2         2         2         3           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >6         0.5         1         0.6           Nitration         Abs/cm         *ASTM D7624         >20         9.4         11.3         9.4           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.8         23.5         21.0           FLUID DEGRADATION method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.8         21.4         17.7							
Sodium         ppm         ASTM D5185m         6         8         4           Potassium         ppm         ASTM D5185m         >20         2         2         3           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >6         0.5         1         0.6           Nitration         Abs/cm         *ASTM D7624         >20         9.4         11.3         9.4           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.8         23.5         21.0           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.8         21.4         17.7	CONTAMINA	NTS	method	limit/base	current	history1	history2
Sodium         ppm         ASTM D5185m         6         8         4           Potassium         ppm         ASTM D5185m         >20         2         2         3           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >6         0.5         1         0.6           Nitration         Abs/cm         *ASTM D7624         >20         9.4         11.3         9.4           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.8         23.5         21.0           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.8         21.4         17.7	Silicon	ppm	ASTM D5185m	>25	4	7	5
Potassium         ppm         ASTM D5185m         >20         2         2         3           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >6         0.5         1         0.6           Nitration         Abs/cm         *ASTM D7624         >20         9.4         11.3         9.4           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.8         23.5         21.0           FLUID DEGRADATION method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.8         21.4         17.7	Sodium		ASTM D5185m		6	8	4
Soot %         %         *ASTM D7844         >6         0.5         1         0.6           Nitration         Abs/cm         *ASTM D7624         >20         9.4         11.3         9.4           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.8         23.5         21.0           FLUID DEGRADATION method limit/base current history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.8         21.4         17.7	Potassium	ppm	ASTM D5185m	>20		2	3
Nitration         Abs/cm         *ASTM D7624         >20         9.4         11.3         9.4           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.8         23.5         21.0           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.8         21.4         17.7	INFRA-RED		method	limit/base	current	history1	history2
Nitration         Abs/cm         *ASTM D7624         >20         9.4         11.3         9.4           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.8         23.5         21.0           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.8         21.4         17.7	Soot %	%	*ASTM D7844	>6	0.5	1	0.6
Sulfation         Abs/.1mm         *ASTM D7415         >30         19.8         23.5         21.0           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.8         21.4         17.7							
Oxidation Abs/.1mm *ASTM D7414 >25 <b>16.8</b> 21.4 17.7							
	FLUID DEGRA	ADATION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	16.8	21.4	17.7
	Base Number (BN				7.5	5.9	7.5



# **OIL ANALYSIS REPORT**



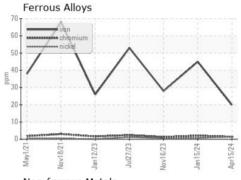


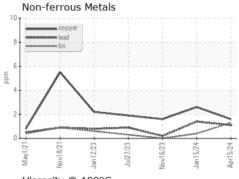


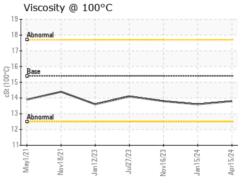
VISUAL		method				history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
<b>Emulsified Water</b>	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

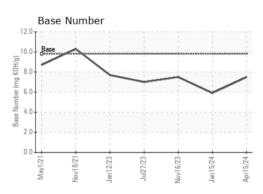
FLUID PROPE	:RHES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.8	13.6	13.8

## **GRAPHS**













Laboratory Sample No.

: GFL0117591 Lab Number : 06152815 Unique Number : 10982893 Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 18 Apr 2024

**Tested** : 19 Apr 2024 Diagnosed : 19 Apr 2024 - Wes Davis

6200 Elmridge Sterling Heights, MI

GFL Environmental - 415 - Michigan East

US 48313 Contact: Frank Wolak fwolak@gflenv.com T: (586)825-9514

Certificate 12367

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)