

## **OIL ANALYSIS REPORT**

Sample Rating Trend



#### Area (43346HA) Machine Id 811004 Component Diesel Engine Fluid PETRO CANADA

Component Diesel Engine Fluid PETRO CANADA DURON SHP 15W40 (--- LTR)

# IP 15W40 (--- LTR)

Sample Number         Client Info         GFL0058103         GFL0058052         GFL0058052         GFL0058052         GFL0058057           Sample Date         Client Info         09 May 2024         13 Mar 2024         28 Feb 2024           Oil Age         hrs         Client Info         4983         4891           Oil Changed         Client Info         4983         0         478           CONTAMINATION         method         imit/base         current         history1         history1           Water         WC Method         >0.2         NEG         NEG         NEG           Glycol         WC Method         >0.2         NEG         NEG         NEG           Mater         WC Method         >0.2         NEG         NEG         NEG           Glycol         WC Method         >0.2         1         1         1           Norskie         ppm         ASTM05185m         >20         <1         1           Nor		MATION	method	limit/base	current	history1	history2
Machine Age         hrs         Client Info         5338         4983         4891           Oil Age         hrs         Client Info         Changed         NA           Sample Status         Imit/base         current         history1         history2           Fuel         WC Method         >3.0         <1.0         <1.0         <1.0           Water         WC Method         >0.2         NEG         NEG         NEG           Glycol         WC Method         >0.2         NEG         NEG         NEG           Water         WC Method         NEG         NEG         NEG         NEG           Tron         ppm         ASTM D5185m         >12.0         4         15         17           Chrormium         ppm         ASTM D5185m         >2.0         0         1         1           Nickel         ppm         ASTM D5185m         >2.0         1         0         2         0           Aluminum         ppm         ASTM D5185m         >2.0         1         0         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1	Sample Number		Client Info		GFL0058103	GFL0058052	GFL0058087
Oil Age         hrs         Client Info         4983         0         478           Oil Changed         Client Info         Changed         N/A           Sample Status         NORMAL         NORMAL         NORMAL           CONTAMINATION         method         imit/base         current         history1         history2           Fuel         WC Method         >3.0         <1.0         <1.0         <1.0           Water         WC Method         >0.2         NEG         NEG         NEG           Water         WC Method         NEG         NEG         NEG         NEG           Water         WC Method         NEG         NEG         NEG         NEG           WEAR METALS         method         imit/base         current         history1         history2           Iron         ppm         ASTM D5165m<>20         0         1         1         1           Nickel         ppm         ASTM D5165m<>20         1         3         4           Lead         ppm         ASTM D5165m<>20         1         3         4           Lead         ppm         ASTM D5165m<>20         1         0         Cafmium         ppm	Sample Date		Client Info		09 May 2024	13 Mar 2024	28 Feb 2024
Oil Changed         Client Info         Changed NORMAL         NORMAL         NORMAL         NORMAL           Sample Status         Imit base         current         history1         history2           Fuel         WC Method         >3.0         <1.0	Machine Age	hrs	Client Info		5338	4983	4891
Sample Status         NORMAL         NORMAL         NORMAL         NORMAL         NORMAL           CONTAMINATION         method         limit/base         current         history1         history2           Fuel         WC Method         >3.0         <1.0         <1.0         <1.0           Water         WC Method         >0.2         NEG         NEG         NEG           Glycol         WC Method         NEG         NEG         NEG         NEG           Iron         ppm         ASTM D5185m         >20         0         1         1           Nickel         ppm         ASTM D5185m         >20         0         <1         0           Nickel         ppm         ASTM D5185m         >2         0         <1         0           Aluminum         ppm         ASTM D5185m         >2         0         <1         0           Aluminum         ppm         ASTM D5185m         >2         0         <1         0           Copper         ppm         ASTM D5185m         >15         <1         1         <1           Vanadrum         ppm         ASTM D5185m         0         <1         0         0           Copper<	Oil Age	hrs	Client Info		4983	0	478
CONTAMINATION         method         limit/base         current         history1         history2           Fuel         WC Method         >3.0         <1.0         <1.0         <1.0           Water         WC Method         >0.2         NEG         NEG         NEG           Glycol         WC Method         NEG         NEG         NEG         NEG           WeAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >120         4         15         17           Chromium         ppm         ASTM D5185m         >20         0         1         1           Nickel         ppm         ASTM D5185m         >20         0         <1         <1           Silver         ppm         ASTM D5185m         >20         1         3         4           Lead         ppm         ASTM D5185m         >40         <1         2         0           Copper         ppm         ASTM D5185m         0         <1         0         0           Cadminum         ppm         ASTM D5185m         0         <1         0         0           Do	Oil Changed		Client Info		Changed	Changed	N/A
Fuel         WC Method         >3.0         <1.0	Sample Status				NORMAL	NORMAL	NORMAL
Water         WC Method         >0.2         NEG         NEG         NEG         NEG           Glycol         WC Method         NEG         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >120         4         15         17           Chromium         ppm         ASTM D5185m         >20         0         1         1           Nickel         ppm         ASTM D5185m         >20         0         <1         <1           Silver         ppm         ASTM D5185m         >20         1         3         4           Lead         ppm         ASTM D5185m         >20         1         3         4           Lead         ppm         ASTM D5185m         >20         1         <1         <1           Vanadium         ppm         ASTM D5185m         >20         1         3         4           Lead         ppm         ASTM D5185m         0         <1         0         0           Copper         ppm         ASTM D5185m         0         2         4         4	CONTAMINAT	TION	method	limit/base	current	history1	history2
Glycol         WC Method         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >120         4         15         17           Chromium         ppm         ASTM D5185m         >20         0         1         1           Nickel         ppm         ASTM D5185m         >20         0         <1         0           Silver         ppm         ASTM D5185m         >20         1         3         4           Lead         ppm         ASTM D5185m         >20         1         3         4           Lead         ppm         ASTM D5185m         >20         1         3         4           Lead         ppm         ASTM D5185m         >20         1         1         <1           Vanadium         ppm         ASTM D5185m         >30         0         <1         0           Cadmium         ppm         ASTM D5185m         0         <1         1         <1           Maneganese         ppm         ASTM D5185m         0         <1         1         <1	Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >120         4         15         17           Chromium         ppm         ASTM D5185m         >20         0         1         1           Nickel         ppm         ASTM D5185m         >2         0         <1         <1           Silver         ppm         ASTM D5185m         >2         0         <1         0           Aluminum         ppm         ASTM D5185m         >2         0         <1         0           Lead         ppm         ASTM D5185m         >20         <1         3         4           Lead         ppm         ASTM D5185m         >20         1         3         4           Lead         ppm         ASTM D5185m         0         <1         0         0           Copper         ppm         ASTM D5185m         0         <1         0         1         0           Cadmium         ppm         ASTM D5185m         0         2         4         4           Barium         ppm         ASTM D5185m         0         2         4	Water		WC Method	>0.2	NEG	NEG	NEG
Iron         ppm         ASTM D5185m         >120         4         15         17           Chromium         ppm         ASTM D5185m         >20         0         1         1           Nickel         ppm         ASTM D5185m         >2         0         <1	Glycol		WC Method		NEG	NEG	NEG
Chromium         ppm         ASTM D5185m         >20         0         1         1           Nickel         ppm         ASTM D5185m         >5         0         3         3           Titanium         ppm         ASTM D5185m         >2         0         <1         <1           Silver         ppm         ASTM D5185m         >2         0         <1         0           Aluminum         ppm         ASTM D5185m         >20         1         3         4           Lead         ppm         ASTM D5185m         >40         <1         2         0           Copper         ppm         ASTM D5185m         >40         <1         2         0           Cadmium         ppm         ASTM D5185m         >330         0         9         9           Tin         ppm         ASTM D5185m         0         <1         1         <1           Vanadium         ppm         ASTM D5185m         0         <1         1         <1           Vanadium         ppm         ASTM D5185m         0         <1         1         <1           Vanadium         ppm         ASTM D5185m         0         <1         1 <td< th=""><th>WEAR METAL</th><th>S</th><th>method</th><th>limit/base</th><th>current</th><th>history1</th><th>history2</th></td<>	WEAR METAL	S	method	limit/base	current	history1	history2
Nickel         ppm         ASTM D5185m         >5         0         3         3           Titanium         ppm         ASTM D5185m         >2         0         <1	Iron	ppm	ASTM D5185m	>120	4	15	17
Titanium         ppm         ASTM D5185m         >2         0         <1         <1           Silver         ppm         ASTM D5185m         >2         0         <1	Chromium	ppm	ASTM D5185m	>20	0	1	1
Silver         ppm         ASTM D5185m         >2         0         <1         0           Aluminum         ppm         ASTM D5185m         >20         1         3         4           Lead         ppm         ASTM D5185m         >40         <1	Nickel	ppm	ASTM D5185m	>5	0	3	3
Aluminum         ppm         ASTM D5185m         >20         1         3         4           Lead         ppm         ASTM D5185m         >40         <1	Titanium	ppm	ASTM D5185m	>2	0	<1	<1
Lead         ppm         ASTM D5185m         >40         <1         2         0           Copper         ppm         ASTM D5185m         >330         0         9         9           Tin         ppm         ASTM D5185m         >15         <1	Silver	ppm	ASTM D5185m	>2	0	<1	0
Copper         ppm         ASTM D5185m         >330         0         9         9           Tin         ppm         ASTM D5185m         >15         <1	Aluminum	ppm	ASTM D5185m	>20	1	3	4
Tin         ppm         ASTM D5185m         >15         <1	Lead	ppm	ASTM D5185m	>40	<1	2	0
Vanadium         ppm         ASTM D5185m         0         <1         0           Cadmium         ppm         ASTM D5185m         0         <1         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         2         4         4           Barium         ppm         ASTM D5185m         0         0         0         0         0           Molybdenum         ppm         ASTM D5185m         0         0         0         0         0           Magnesium         ppm         ASTM D5185m         0         <1         1         <1           Magnesium         ppm         ASTM D5185m         01010         951         970         979           Calcium         ppm         ASTM D5185m         1070         1063         1153         1051           Phosphorus         ppm         ASTM D5185m         1070         1031         999         964           Zinc         ppm         ASTM D5185m         1270         1237         1273         1263           Sulfur         ppm         ASTM D5185m         2060 <th< td=""><td>Copper</td><td>ppm</td><td>ASTM D5185m</td><td>&gt;330</td><th>0</th><td>9</td><td>9</td></th<>	Copper	ppm	ASTM D5185m	>330	0	9	9
Cadmium         ppm         ASTM D5185m         0         <1	Tin	ppm	ASTM D5185m	>15	<1	1	<1
ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         2         4         4           Barium         ppm         ASTM D5185m         0         0         0         0           Molybdenum         ppm         ASTM D5185m         60         60         56         63           Manganese         ppm         ASTM D5185m         0         <1         1         <1           Magnesium         ppm         ASTM D5185m         1010         951         970         979           Calcium         ppm         ASTM D5185m         1070         1063         1153         1051           Phosphorus         ppm         ASTM D5185m         1270         1237         1273         1263           Sulfur         ppm         ASTM D5185m         2060         3368         3291         2925           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         <1         3         2           INFRA-RED         method         limit/base         c	Vanadium	ppm	ASTM D5185m		0	<1	0
Boron         ppm         ASTM D5185m         0         2         4         4           Barium         ppm         ASTM D5185m         0         0         0         0         0           Molybdenum         ppm         ASTM D5185m         60         60         56         63           Manganese         ppm         ASTM D5185m         0         <1         1         <1           Magnesium         ppm         ASTM D5185m         1010         951         970         979           Calcium         ppm         ASTM D5185m         1010         951         970         979           Calcium         ppm         ASTM D5185m         1070         1063         1153         1051           Phosphorus         ppm         ASTM D5185m         1270         1237         1273         1263           Sulfur         ppm         ASTM D5185m         2060         3368         3291         2925           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         <1         3         2           INFRA-RED         method         limit/	Cadmium	ppm	ASTM D5185m		0	<1	0
Barium         ppm         ASTM D5185m         0         0         0         0         0           Molybdenum         ppm         ASTM D5185m         60         60         56         63           Manganese         ppm         ASTM D5185m         0         <1         1         <1           Magnesium         ppm         ASTM D5185m         1010         951         970         979           Calcium         ppm         ASTM D5185m         1070         1063         1153         1051           Phosphorus         ppm         ASTM D5185m         1070         1063         1153         1051           Phosphorus         ppm         ASTM D5185m         1270         1237         1273         1263           Sulfur         ppm         ASTM D5185m         2060         3368         3291         2925           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         3         4         4           Sodium         ppm         ASTM D5185m         >20         <1         3         2           INFRA-RED         method         <	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum         ppm         ASTM D5185m         60         60         56         63           Manganese         ppm         ASTM D5185m         0         <1         1         <1           Magnesium         ppm         ASTM D5185m         1010         951         970         979           Calcium         ppm         ASTM D5185m         1010         951         970         979           Calcium         ppm         ASTM D5185m         1070         1063         1153         1051           Phosphorus         ppm         ASTM D5185m         1070         1031         999         964           Zinc         ppm         ASTM D5185m         1270         1237         1273         1263           Sulfur         ppm         ASTM D5185m         2060         3368         3291         2925           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         <1         3         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         'ASTM D7624	Boron	ppm	ASTM D5185m	0	2	4	
Maganese         ppm         ASTM D5185m         0         <1	Barium	ppm	ASTM D5185m	0	0	0	0
Magnesium         ppm         ASTM D5185m         1010         951         970         979           Calcium         ppm         ASTM D5185m         1070         1063         1153         1051           Phosphorus         ppm         ASTM D5185m         1150         1031         999         964           Zinc         ppm         ASTM D5185m         1270         1237         1273         1263           Sulfur         ppm         ASTM D5185m         2060         3368         3291         2925           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         3         4         4           Sodium         ppm         ASTM D5185m         >25         3         4         4           Sodium         ppm         ASTM D5185m         >20         <1	Molvbdenum	maa	ASTM D5185m	60			
Calcium         ppm         ASTM D5185m         1070         1063         1153         1051           Phosphorus         ppm         ASTM D5185m         1150         1031         999         964           Zinc         ppm         ASTM D5185m         1270         1237         1273         1263           Sulfur         ppm         ASTM D5185m         2060         3368         3291         2925           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         3         4         4           Sodium         ppm         ASTM D5185m         >25         3         4         4           Sodium         ppm         ASTM D5185m         >20         <1         3         5         5           Potassium         ppm         ASTM D5185m         >20         <1         3         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7624         >20         6.8         8.2         7.8           Sulfation         Abs/.1mm         *ASTM D7		1+ 1+ · · · ·	AOTIM DOTODIII	00	60	56	63
Phosphorus         ppm         ASTM D5185m         1150         1031         999         964           Zinc         ppm         ASTM D5185m         1270         1237         1273         1263           Sulfur         ppm         ASTM D5185m         2060         3368         3291         2925           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         3         4         4           Sodium         ppm         ASTM D5185m         >25         3         4         4           Sodium         ppm         ASTM D5185m         >20         <11         3         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.3         0.5         0.4           Nitration         Abs/cm         *ASTM D7624         >20         6.8         8.2         7.8           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.2         20.0         19.5           FLUID DEGRADATION         method         limit/b	Manganese						
Zinc         ppm         ASTM D5185m         1270         1237         1273         1263           Sulfur         ppm         ASTM D5185m         2060         3368         3291         2925           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         3         4         4           Sodium         ppm         ASTM D5185m         >25         3         5         5           Potassium         ppm         ASTM D5185m         >20         <1         3         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.3         0.5         0.4           Nitration         Abs/cm         *ASTM D7624         >20         6.8         8.2         7.8           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.2         20.0         19.5           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414	Manganese	ppm	ASTM D5185m	0	<1	1	<1
Sulfur         ppm         ASTM D5185m         2060         3368         3291         2925           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         3         4         4           Sodium         ppm         ASTM D5185m         >25         3         4         4           Sodium         ppm         ASTM D5185m         >20         <1	Manganese Magnesium	ppm ppm	ASTM D5185m ASTM D5185m	0 1010	<1 951	1 970	<1 979
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m<>25         3         4         4           Sodium         ppm         ASTM D5185m         >25         3         4         4           Sodium         ppm         ASTM D5185m         >20         3         5         5           Potassium         ppm         ASTM D5185m         >20         <1         3         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.3         0.5         0.4           Nitration         Abs/cm         *ASTM D7624         >20         6.8         8.2         7.8           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.2         20.0         19.5           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.7         15.7         15.4	Manganese Magnesium Calcium Phosphorus	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070	<1 951 1063 1031	1 970 1153 999	<1 979 1051 964
Silicon         ppm         ASTM D5185m         >25         3         4         4           Sodium         ppm         ASTM D5185m         >25         3         5         5           Potassium         ppm         ASTM D5185m         >20         <1	Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070 1150	<1 951 1063 1031	1 970 1153 999	<1 979 1051 964 1263
Sodium         ppm         ASTM D5185m         3         5         5           Potassium         ppm         ASTM D5185m<>20         <1         3         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.3         0.5         0.4           Nitration         Abs/cm         *ASTM D7624         >20         6.8         8.2         7.8           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.2         20.0         19.5           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.7         15.7         15.4	Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070 1150 1270	<1 951 1063 1031 1237	1 970 1153 999 1273	<1 979 1051 964 1263
Potassium         ppm         ASTM D5185m         >20         <1	Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070 1150 1270 2060	<1 951 1063 1031 1237 3368	1 970 1153 999 1273 3291	<1 979 1051 964 1263 2925
INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.3         0.5         0.4           Nitration         Abs/cm         *ASTM D7624         >20         6.8         8.2         7.8           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.2         20.0         19.5           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.7         15.7         15.4	Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b>	0 1010 1070 1150 1270 2060 limit/base	<1 951 1063 1031 1237 3368 current	1 970 1153 999 1273 3291 history1	<1 979 1051 964 1263 2925 history2 4
Soot %         %         *ASTM D7844         >4         0.3         0.5         0.4           Nitration         Abs/cm         *ASTM D7624         >20         6.8         8.2         7.8           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.2         20.0         19.5           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.7         15.7         15.4	Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m	0 1010 1070 1150 1270 2060 limit/base	<1 951 1063 1031 1237 3368 current 3	1 970 1153 999 1273 3291 history1 4 5	<1 979 1051 964 1263 2925 history2 4 5
Nitration         Abs/cm         *ASTM D7624         >20         6.8         8.2         7.8           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.2         20.0         19.5           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.7         15.7         15.4	Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm <b>NTS</b> ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070 1150 1270 2060 limit/base >25	<1 951 1063 1031 1237 3368 <u>current</u> 3 3	1 970 1153 999 1273 3291 history1 4 5	<1 979 1051 964 1263 2925 history2 4 5
Sulfation         Abs/.1mm         *ASTM D7415         >30         19.2         20.0         19.5           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.7         15.7         15.4	Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm <b>NTS</b> ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070 1150 1270 2060 /////////////////////////////////	<1 951 1063 1031 1237 3368 <u>current</u> 3 3 <1	1 970 1153 999 1273 3291 history1 4 5 3	<1 979 1051 964 1263 2925 history2 4 5 2
FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     14.7     15.7     15.4	Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm vTS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20	<1 951 1063 1031 1237 3368 <u>current</u> 3 3 <1 current	1 970 1153 999 1273 3291 history1 4 5 3 3 <u>history1</u> 0.5	<1 979 1051 964 1263 2925 history2 4 5 2 history2
Oxidation Abs/.1mm *ASTM D7414 >25 14.7 15.7 15.4	Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm vTS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i> >4	<1 951 1063 1031 1237 3368 <u>current</u> 3 3 <1 <u>current</u> 0.3	1 970 1153 999 1273 3291 history1 4 5 3 3 <u>history1</u> 0.5	<1 979 1051 964 1263 2925 history2 4 5 2 history2 0.4
	Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm vTS ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D7844 *ASTM D7844	0 1010 1070 1150 1270 2060 limit/base >25 	<1 951 1063 1031 1237 3368 <u>current</u> 3 3 <1 <u>current</u> 0.3 6.8	1 970 1153 999 1273 3291 history1 4 5 3 3 history1 0.5 8.2	<1 979 1051 964 1263 2925 history2 4 5 2 history2 0.4 7.8
Base Number (BN)         mg KOH/g         ASTM D2896         9.8         7.6         6.5         6.9	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 ASTM D7844 *ASTM D7624	0 1010 1070 1150 1270 2060 /////////////////////////////////	<1 951 1063 1031 1237 3368 <u>current</u> 3 3 <1 <u>current</u> 0.3 6.8 19.2	1 970 1153 999 1273 3291 history1 4 5 3 history1 0.5 8.2 20.0	<1 979 1051 964 1263 2925 history2 4 5 2 history2 0.4 7.8 19.5
	Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRA	ppm ppm ppm ppm ppm ppm vTS ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D7844 *ASTM D7624 *ASTM D7415	0 1010 1070 1150 1270 2060 /////////////////////////////////	<1 951 1063 1031 1237 3368 current 3 3 <1 current 0.3 6.8 19.2 current	1 970 1153 999 1273 3291 history1 4 5 3 history1 0.5 8.2 20.0 history1	<1 979 1051 964 1263 2925 history2 4 5 2 0.4 7.8 19.5 history2

### DIAGNOSIS Recommendation

Resample at the next service interval to monitor.

#### Wear

All component wear rates are normal.

#### Contamination

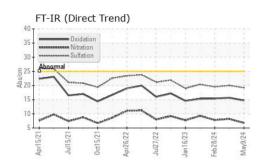
There is no indication of any contamination in the oil.

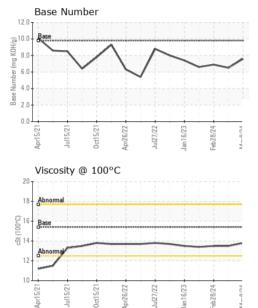
#### Fluid Condition

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



## **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	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
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	13.8	13.5	13.5

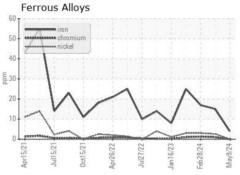
GRAPHS

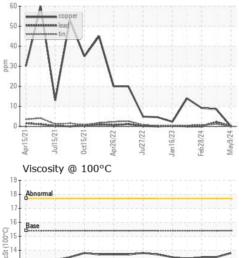
Non-ferrous Metals

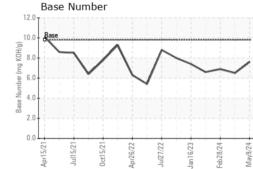
12

11-10-

Apr15/21







Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 657 - Charlottesville Hauling Sample No. : GFL0058103 Received : 10 May 2024 5498 Richmond Road Lab Number : 06175265 Tested : 13 May 2024 Troy, VA US 22974 Unique Number : 11021318 Diagnosed : 13 May 2024 - Wes Davis Test Package : FLEET Contact: Brian Ulickas Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. bulickas@gflenv.com \* - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F:

Apr26/22

Jul27/22

May9/24 -

Feb28/24

Jan 16/23

Submitted By: TECHNICIAN ACCOUNT

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