

## **OIL ANALYSIS REPORT**

Sample Rating Trend





Machine Id 912036

Fluid

Component
Diesel Engine

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 Number         Client Info         OFL0103513         GFL0094777         GFL0078688           Sample Date         Client Info         08 Jan 2024         14 Dec 2022         22 Nov 2023           Machine Age         hrs         Client Info         5542         5407         5270           Oil Age         hrs         Client Info         NA         Not Changed         N/A           Sample Status         I         Client Info         NA         NorRMAL         NORMAL           CONTAMINATION         method         Salo         <1.0         NA         NorRMAL           Water         WC Method         Salo         <1.0         <1.0         NEG         NEG           Water         WC Method         Salo         <1.0         NEG         NEG         NEG           Machine ppm         ASTM05165m         Salo         <1.0         NEG         NEG         NEG           VecArr METAL         method         Imitbibs         Salo         <1.0         <1.0         NA           Nickel         ppm         ASTM05165m         Salo         <1         0         <1           Iron         ppm         ASTM05165m         Salo         2         4         <1     <	SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Machine Age         hrs         Client Info         5542         5407         5270           Oil Age         hrs         Client Info         1021         886         0           Oil Changed         Client Info         N/A         NoRMAL         NORMAL         NORMAL           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           Chromium         ppm         ASTM D5185m         >20         <1         <1         0           Nickel         ppm         ASTM D5185m         >20         <1         <1         0	Sample Number		Client Info		GFL0103513	GFL0094777	GFL0078688
Machine Age         hrs         Client Info         5542         5407         5270           Oil Age         hrs         Client Info         1021         886         0           Oil Changed         Client Info         N/A         NoRMAL         NORMAL         NORMAL           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           Chromium         ppm         ASTM D5185m         >20         <1         <1         0           Nickel         ppm         ASTM D5185m         >20         <1         <1         0			Client Info		08 Jan 2024	14 Dec 2023	22 Nov 2023
Oil Age         hrs         Client Info         1021         886         0           Oil Changed         Client Info         N/A         Not Changd         N/A           Sample Status         Imit/base         current         history1         history1           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         >0.2         4.0         <1.0         <1.0           Water         MC Method         >0.2         4.1         <1.0         <1.0           Water         ppm         ASTM D5185m         >120         8         9         2           Iron         ppm         ASTM D5185m         >20         <1         0         <1.0           Nickel         ppm         ASTM D5185m         >20         2         4         <1.0           Silver         ppm         ASTM D5185m         >20         2         <1         1.0           Cadmium         ppm         ASTM D5185m <td< th=""><th></th><th>hrs</th><th></th><th></th><th></th><th></th><th></th></td<>		hrs					
Oil Changed Sample Status         Client Info         N/A         Not Changd NORMAL         N/A         N/A         N/A           CONTAMINATION         method         limit/base         current         history1         history2           Fuel         WC Method         >3.0         <1.0	•						
Sample Status         NORMAL         NORMAL         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           Glycol         WC Method         >0.2         NEG         NEG         NEG           WeAR METALS         method         imit/base         current         history1         history2           Iron         ppm         ASTM D5185m<>12.0         8         9         2         Chromium         ppm         ASTM D5185m<>2.0         c1         <1         0           Nickel         ppm         ASTM D5185m         >2         0         <1         1         0           Auminum         ppm         ASTM D5185m         >2         0         0         0         0         0         0         0         0         1         1         1         1         0         1         1         0         1         1         1         0         1         1         0         1 <td< th=""><th>0</th><th></th><th></th><th></th><th></th><th></th><th></th></td<>	0						
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         8         9         2           Chromium         ppm         ASTM D5185m         >20         <1         0         0           Nickel         ppm         ASTM D5185m         >2         0         0         0           Silver         ppm         ASTM D5185m         >20         2         4         -1           Lead         ppm         ASTM D5185m         >20         2         2         -1           Tin         ppm         ASTM D5185m         >15         <1         0         -1           Cadmium         ppm         ASTM D5185m         0         0         0         0           Molybde	-						
Fuel         WC Method         >3.0         <1.0					NOTIMAL	NOTIVIAL	-
Water         WC Method         >0.2         NEG         NEG         NEG         NEG           Glycol         WC Method         Imit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >120         8         9         2           Chromium         ppm         ASTM D5185m         >20         <1         <1         0           Nickel         ppm         ASTM D5185m         >2         0         <1         0           Silver         ppm         ASTM D5185m         >2         0         0         0           Aluminum         ppm         ASTM D5185m         >20         2         4         <1           Lead         ppm         ASTM D5185m         >20         0         0         0           Copper         ppm         ASTM D5185m         >40         0         0         0           Cadmium         ppm         ASTM D5185m         >11         0         <1         0           Cadmium         ppm         ASTM D5185m         0         10         12         15           Barium         ppm         ASTM D5185m         0         0         0         <	CONTAMINAT	ION	method	limit/base	current	history1	history2
Glycol         WC Method         NEG         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >120         8         9         2           Chromium         ppm         ASTM D5185m         >20         <1         <1         0           Nickel         ppm         ASTM D5185m         >2         0         <1         0           Silver         ppm         ASTM D5185m         >2         0         0         0           Aluminum         ppm         ASTM D5185m         >20         2         4         <1           Lead         ppm         ASTM D5185m         >20         2         4         <1           Lead         ppm         ASTM D5185m         >330         2         2         <1           Vanadium         ppm         ASTM D5185m         0         0         0         <1           Cadmium         ppm         ASTM D5185m         0         10         12         15           Barium         ppm         ASTM D5185m         0         89         87         85     <	Fuel		WC Method	>3.0			
WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >120         8         9         2           Chromium         ppm         ASTM D5185m         >20         <1         1         0           Nickel         ppm         ASTM D5185m         >20         <1         <1         0           Silver         ppm         ASTM D5185m         >2         0         0         0           Aluminum         ppm         ASTM D5185m         >2         0         0         0           Copper         ppm         ASTM D5185m         >20         2         4         <1           Lead         ppm         ASTM D5185m         >330         2         2         <1           Tin         ppm         ASTM D5185m         0         0         0         <1           Cadmium         ppm         ASTM D5185m         0         10         12         15           Barium         ppm         ASTM D5185m         0         10         12         15           Barium         ppm         ASTM D5185m         0         101         12 <t< th=""><th>Water</th><th></th><th>WC Method</th><th>&gt;0.2</th><th>NEG</th><th>NEG</th><th>NEG</th></t<>	Water		WC Method	>0.2	NEG	NEG	NEG
Iron         ppm         ASTM D5185m         >12.0         8         9         2           Chromium         ppm         ASTM D5185m         >20         <1         <1         0           Nickel         ppm         ASTM D5185m         >5         1         <1         0           Silver         ppm         ASTM D5185m         >2         0         0         0           Aluminum         ppm         ASTM D5185m         >20         2         4         <1           Lead         ppm         ASTM D5185m         >20         2         2         <1           Lead         ppm         ASTM D5185m         >330         2         2         <1         1           Lead         ppm         ASTM D5185m         >330         2         2         <1         1           Lead         ppm         ASTM D5185m         >330         2         2         <1         1           Lead         ppm         ASTM D5185m         >330         2         2         <1         1           Cadmium         ppm         ASTM D5185m         0         10         12         15           Barium         ppm         ASTM D5185m <th>Glycol</th> <th></th> <th>WC Method</th> <th></th> <th>NEG</th> <th>NEG</th> <th>NEG</th>	Glycol		WC Method		NEG	NEG	NEG
Chromium         ppm         ASTM D5185m         >20         <1	WEAR METAL	S	method	limit/base	current	history1	history2
Chromium         ppm         ASTM D5185m         >20         <1	Iron	ppm	ASTM D5185m	>120	8	9	2
Nickel         ppm         ASTM D5185m         >5         1         <1	Chromium		ASTM D5185m	>20	-	<1	0
Titanium         ppm         ASTM D5185m         >2         0         <1							
Silver         ppm         ASTM D5185m         >2         0         0         0           Aluminum         ppm         ASTM D5185m         >20         2         4         <1           Lead         ppm         ASTM D5185m         >40         0         0         0           Copper         ppm         ASTM D5185m         >330         2         2         <1           Tin         ppm         ASTM D5185m         >15         <1         0         <1           Cadmium         ppm         ASTM D5185m         >15         <1         0         <1           Cadmium         ppm         ASTM D5185m          0         0         0         0           ADDITIVES         method         imit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         10         12         15           Barium         ppm         ASTM D5185m         0         <1         0         0           Maganese         ppm         ASTM D5185m         1010         963         888         923           Calcium         ppm         ASTM D5185m         1070         1154							
Aluminum         ppm         ASTM D5185m         >20         2         4         <1					-		
Lead         ppm         ASTM D5185m         >40         0         0         0           Copper         ppm         ASTM D5185m         >330         2         2         <1           Tin         ppm         ASTM D5185m         >15         <1         0         <1           Vanadium         ppm         ASTM D5185m         <1         0         <1            Cadmium         ppm         ASTM D5185m         0         0         0         <1           Cadmium         ppm         ASTM D5185m         0         10         12         15           Boron         ppm         ASTM D5185m         0         0         0         0           Molybdenum         ppm         ASTM D5185m         0         <11         0         0           Maganese         ppm         ASTM D5185m         0         <11         0         0           Maganesium         ppm         ASTM D5185m         1010         963         888         923           Calcium         ppm         ASTM D5185m         1070         1154         1034         1093           Phosphorus         ppm         ASTM D5185m         1270         1260							
Copper         ppm         ASTM D5185m         >330         2         2         <1							
Tin         ppm         ASTM D5185m         >15         <1							
Vanadium         ppm         ASTM D5185m         <1							
Cadmium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         10         12         15           Barium         ppm         ASTM D5185m         0         0         0         0           Molybdenum         ppm         ASTM D5185m         0         41         0         0           Magnesium         ppm         ASTM D5185m         0         <1         0         0           Magnesium         ppm         ASTM D5185m         1010         963         888         923           Calcium         ppm         ASTM D5185m         1070         1154         1034         1093           Phosphorus         ppm         ASTM D5185m         1270         1260         1179         1217           Sulfur         ppm         ASTM D5185m         2060         2920         3128         3045           CONTAMINANTS         method         imit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         9				210			
ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         10         12         15           Barium         ppm         ASTM D5185m         0         0         0         0           Molybdenum         ppm         ASTM D5185m         60         89         87         85           Manganese         ppm         ASTM D5185m         0         <1         0         0           Magnesium         ppm         ASTM D5185m         1010         963         888         923           Calcium         ppm         ASTM D5185m         1070         1154         1034         1093           Phosphorus         ppm         ASTM D5185m         1270         1260         1179         1217           Sulfur         ppm         ASTM D5185m         2060         2920         3128         3045           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         9         13         7           INFRA-RED         method         limit/base <td< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th></td<>							
Boron         ppm         ASTM D5185m         0         10         12         15           Barium         ppm         ASTM D5185m         0         0         0         0           Molybdenum         ppm         ASTM D5185m         60         89         87         85           Manganese         ppm         ASTM D5185m         0         <1         0         0           Magnesium         ppm         ASTM D5185m         1010         963         888         923           Calcium         ppm         ASTM D5185m         1010         963         888         923           Calcium         ppm         ASTM D5185m         1070         1154         1034         1093           Phosphorus         ppm         ASTM D5185m         1270         1260         1179         1217           Sulfur         ppm         ASTM D5185m         2060         2920         3128         3045           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         9         13         7           INFRA-RED         method         limit/base							
Barium         ppm         ASTM D5185m         0         0         0         0         0           Molybdenum         ppm         ASTM D5185m         60         89         87         85           Manganese         ppm         ASTM D5185m         0         <1         0         0           Magnesium         ppm         ASTM D5185m         1010         963         888         923           Calcium         ppm         ASTM D5185m         1010         963         888         923           Calcium         ppm         ASTM D5185m         1010         963         888         923           Calcium         ppm         ASTM D5185m         1070         1154         1034         1093           Phosphorus         ppm         ASTM D5185m         1070         1260         1179         1217           Sulfur         ppm         ASTM D5185m         2060         2920         3128         3045           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         9         13         7           INFRA-RED         method	ADDITIVES		method	limit/base	current	historv1	historv2
Molybdenum         ppm         ASTM D5185m         60         89         87         85           Manganese         ppm         ASTM D5185m         0         <1		0000					
Manganese         ppm         ASTM D5185m         0         <1	Boron		ASTM D5185m	0	10	12	15
Magnesium         ppm         ASTM D5185m         1010         963         888         923           Calcium         ppm         ASTM D5185m         1070         1154         1034         1093           Phosphorus         ppm         ASTM D5185m         1150         1015         960         1043           Zinc         ppm         ASTM D5185m         1270         1260         1179         1217           Sulfur         ppm         ASTM D5185m         2060         2920         3128         3045           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         5         4         4           Sodium         ppm         ASTM D5185m         >20         9         13         7           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.5         0.4         0.2           Nitration         Abs/.1mm         *ASTM D7624         >20         9.5         7.5         6.5           Sulfation         Abs/.1mm         *ASTM D	Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	10 0	12 0	15 0
Calcium         ppm         ASTM D5185m         1070         1154         1034         1093           Phosphorus         ppm         ASTM D5185m         1150         1015         960         1043           Zinc         ppm         ASTM D5185m         1270         1260         1179         1217           Sulfur         ppm         ASTM D5185m         2060         2920         3128         3045           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         5         4         4           Sodium         ppm         ASTM D5185m         >20         9         13         7           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.5         0.4         0.2           Nitration         Abs/cm         *ASTM D7624         >20         9.5         7.5         6.5           Sulfation         Abs/.tmm         *ASTM D7415         >30         21.0         19.7         18.9           FLUID DEGRADATION         method	Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	10 0 89	12 0 87	15 0 85
Phosphorus         ppm         ASTM D5185m         1150         1015         960         1043           Zinc         ppm         ASTM D5185m         1270         1260         1179         1217           Sulfur         ppm         ASTM D5185m         2060         2920         3128         3045           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         5         4         4           Sodium         ppm         ASTM D5185m         >25         5         4         4           Potassium         ppm         ASTM D5185m         >20         9         13         7           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.5         0.4         0.2           Nitration         Abs/cm         *ASTM D7624         >20         9.5         7.5         6.5           Sulfation         Abs/tm         *ASTM D7624         >20         9.5         7.5         6.5           Sulfation         Abs/tm         *ASTM D7415	Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	10 0 89 <1	12 0 87 0	15 0 85 0
Zinc         ppm         ASTM D5185m         1270         1260         1179         1217           Sulfur         ppm         ASTM D5185m         2060         2920         3128         3045           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         5         4         4           Sodium         ppm         ASTM D5185m         >20         9         13         7           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.5         0.4         0.2           Nitration         Abs/cm         *ASTM D7624         >20         9.5         7.5         6.5           Sulfation         Abs/rm         *ASTM D7415         >30         21.0         19.7         18.9           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.tm         *ASTM D7414         >25         17.0         15.7         14.8	Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	10 0 89 <1 963	12 0 87 0 888	15 0 85 0 923
SulfurppmASTM D5185m2060292031283045CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>25544SodiumppmASTM D5185m>209137INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7844>40.50.40.2NitrationAbs/cm*ASTM D7624>209.57.56.5SulfationAbs/tm*ASTM D7415>3021.019.718.9FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/tm*ASTM D7414>2517.015.714.8	Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	10 0 89 <1 963 1154	12 0 87 0 888 1034	15 0 85 0 923 1093
CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>25544SodiumppmASTM D5185m>209137INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7844>40.50.40.2NitrationAbs/cm*ASTM D7624>209.57.56.5SulfationAbs/rm*ASTM D7415>3021.019.718.9FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/.1mm*ASTM D7414>2517.015.714.8	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	10 0 89 <1 963 1154 1015	12 0 87 0 888 1034 960	15 0 85 0 923 1093 1043
Silicon         ppm         ASTM D5185m         >25         5         4         4           Sodium         ppm         ASTM D5185m         4         1         4           Potassium         ppm         ASTM D5185m         >20         9         13         7           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.5         0.4         0.2           Nitration         Abs/cm         *ASTM D7624         >20         9.5         7.5         6.5           Sulfation         Abs/tmm         *ASTM D7415         >30         21.0         19.7         18.9           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         17.0         15.7         14.8	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270	10 0 89 <1 963 1154 1015 1260	12 0 87 0 888 1034 960 1179	15 0 85 0 923 1093 1043 1217
Sodium         ppm         ASTM D5185m         4         1         4           Potassium         ppm         ASTM D5185m<>20         9         13         7           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.5         0.4         0.2           Nitration         Abs/cm         *ASTM D7624         >20         9.5         7.5         6.5           Sulfation         Abs/.1mm         *ASTM D7415         >30         21.0         19.7         18.9           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         17.0         15.7         14.8	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	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	10 0 89 <1 963 1154 1015 1260 2920	12 0 87 0 888 1034 960 1179 3128	15 0 85 0 923 1093 1043 1217 3045
Potassium         ppm         ASTM D5185m         >20         9         13         7           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.5         0.4         0.2           Nitration         Abs/cm         *ASTM D7624         >20         9.5         7.5         6.5           Sulfation         Abs/.1mm         *ASTM D7415         >30         21.0         19.7         18.9           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         17.0         15.7         14.8	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	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	10 0 89 <1 963 1154 1015 1260 2920 current	12 0 87 0 888 1034 960 1179 3128 history1	15 0 85 0 923 1093 1043 1217 3045 history2
INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.5         0.4         0.2           Nitration         Abs/cm         *ASTM D7624         >20         9.5         7.5         6.5           Sulfation         Abs/.1mm         *ASTM D7415         >30         21.0         19.7         18.9           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         17.0         15.7         14.8	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b>	0 0 60 0 1010 1070 1150 1270 2060	10 0 89 <1 963 1154 1015 1260 2920 current 5	12 0 87 0 888 1034 960 1179 3128 history1 4	15 0 85 0 923 1093 1043 1217 3045 history2 4
Soot %         %         *ASTM D7844         >4         0.5         0.4         0.2           Nitration         Abs/cm         *ASTM D7624         >20         9.5         7.5         6.5           Sulfation         Abs/.1mm         *ASTM D7415         >30         21.0         19.7         18.9           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         17.0         15.7         14.8	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	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	0 0 60 1010 1070 1150 1270 2060 limit/base >25	10 0 89 <1 963 1154 1015 1260 2920 current 5 4	12 0 87 0 888 1034 960 1179 3128 history1 4 1	15 0 85 0 923 1093 1043 1217 3045 history2 4 4
Nitration         Abs/cm         *ASTM D7624         >20         9.5         7.5         6.5           Sulfation         Abs/.1mm         *ASTM D7415         >30         21.0         19.7         18.9           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         17.0         15.7         14.8	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25	10 0 89 <1 963 1154 1015 1260 2920 current 5 4	12 0 87 0 888 1034 960 1179 3128 history1 4 1	15 0 85 0 923 1093 1043 1217 3045 history2 4 4 4 7
Sulfation         Abs/.1mm         *ASTM D7415         >30         21.0         19.7         18.9           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         17.0         15.7         14.8	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25	10 0 89 <1 963 1154 1015 1260 2920 current 5 4 9 9	12 0 87 0 888 1034 960 1179 3128 history1 4 1 13 history1	15 0 85 0 923 1093 1043 1217 3045 history2 4 4 7 5 history2
FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     17.0     15.7     14.8	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25	10 0 89 <1 963 1154 1015 1260 2920 current 5 4 9 current 0.5	12 0 87 0 888 1034 960 1179 3128 history1 4 1 13 history1 0.4	15 0 85 0 923 1093 1043 1217 3045 history2 4 4 4 7 history2 0.2
Oxidation Abs/.1mm *ASTM D7414 >25 17.0 15.7 14.8	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >20	10 0 89 <1 963 1154 1015 1260 2920 current 5 4 9 current 0.5	12 0 87 0 888 1034 960 1179 3128 history1 4 1 13 history1 0.4	15 0 85 0 923 1093 1043 1217 3045 history2 4 4 4 7 history2 0.2
	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i> >4 >20	10 0 89 <1 963 1154 1015 1260 2920 current 5 4 9 current 0.5 9.5	12 0 87 0 888 1034 960 1179 3128 history1 4 1 13 history1 0.4 7.5	15 0 85 0 923 1093 1043 1217 3045 history2 4 4 4 7 history2 0.2 6.5
	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 ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 25 20 20 <b>limit/base</b> >20 <b>limit/base</b> >20	10 0 89 <1 963 1154 1015 1260 2920 current 5 4 9 <u>current</u> 0.5 9.5 21.0	12 0 87 0 888 1034 960 1179 3128 history1 4 1 13 history1 0.4 7.5 19.7	15 0 85 0 923 1093 1043 1217 3045 history2 4 4 4 7 history2 0.2 6.5 18.9
	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 ASTM D7844 *ASTM D7624	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 220 20 20 20 20 20 20 20 20 20 20 20	10 0 89 <1 963 1154 1015 1260 2920 current 5 4 9 current 0.5 9.5 21.0 current	12 0 87 0 888 1034 960 1179 3128 history1 4 1 13 history1 0.4 7.5 19.7 history1	15 0 85 0 923 1093 1043 1217 3045 history2 4 4 4 4 7 history2 0.2 6.5 18.9 history2

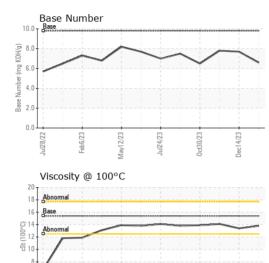


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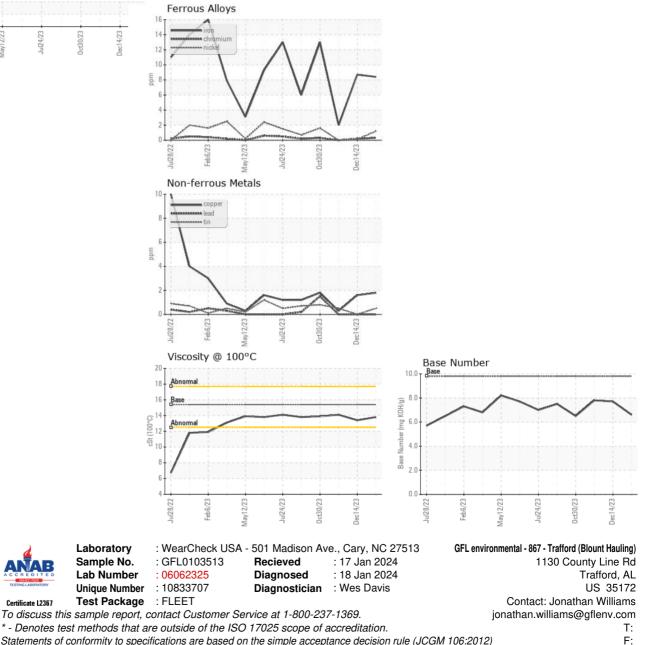
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# **OIL ANALYSIS REPORT**



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	13.4	14.1
GRAPHS						



Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Submitted By: see also GFL868 - Chelsea Bryan