

# **OIL ANALYSIS REPORT**

# Sample Rating Trend

NORMAL

### Machine Id 727099-361672 Component

# Diesel Engine

Fluid 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     IFL0098292     GFL0079336     GFL0079230       Sample Date     Client Info     14 Nov 2023     02 Oct 2023     10 Jul 2023       Machine Age     hrs     Client Info     150     700     700       Oil Age     hrs     Client Info     Not Changd     Changed     Changed       Contramit     Method     Soft     -1.0     <1.0     Not Changed       CONTAMINATION     method     Soft     -1.0     <1.0     <1.0       Vice     WC Method     >5     <1.0     <1.0     <1.0       Water     WC Method     >5     <1.0     <1.0     <1.0       Giycol     WC Method     >5.0     <1.0     <1.0     <1.0       Chromium     ppm     ASTM 55155     >2.0     1     1     1       Nickel     ppm     ASTM 55155     >2.0     2     4     5       Chromium     ppm     ASTM 55155     >3.0     0     0     <1       Nickel     ppm     ASTM 5	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age     hrs     Client Info     30756     5800     5211       Oil Age     irrs     Client Info     150     700     700       Oil Changed     Client Info     Not Changd     Changed     Changed       Sample Status     Imit/base     current     NORMAL     NORMAL       VCOM TAMINATION     method     imit/base     current     history1     history2       Fuel     WC Method     >5     <1.0     <1.0     <1.0       Water     WC Method     >5     <1.0     <1.0     <1.0       Water     WC Method     >0.2     NEG     NEG     NEG       Chromium     ppm     ASTM 05185m     >20     <1     1     1       Nickel     ppm     ASTM 05185m     >20     2     4     5       Corporer     ppm     ASTM 05185m     >20     2     4     5       Silver     ppm     ASTM 05185m     >20     2     4     5       Lead     ppm     ASTM 05185m	Sample Number		Client Info		GFL0098292	GFL0079336	GFL0079294
Oil Age     Inrs     Client Info     150     700     700       Oil Changed     Client Info     Not Changed     Changed     Changed       Sample Status      Imit/bass     current     Not RMAL     NORMAL       CONTAMINATION     method     Imit/bass     current     Nistory1     Nistory2       Fuel     WC Method     So     <1.0     <1.0     <1.0       Water     WC Method     So     <1.0     <1.0     <1.0       Water     WC Method     So     <1.0     <1.0     <1.0       Wickel     WC Method     So     current     History1     History2       Iron     ppm     ASTM D5185m     >100     19     21     27       Chromium     ppm     ASTM D5185m     >40     0     0     <11       Nickel     ppm     ASTM D5185m     >30     0     0     <12       Silver     ppm     ASTM D5185m     >41     0     0     <11       Copper     ppm	Sample Date		Client Info		14 Nov 2023	02 Oct 2023	10 Jul 2023
Oil Changed Sample Status     Client Info     Not Changed NORMAL     Changed NORMAL     Changed NORMAL     Changed NORMAL     Changed NORMAL       CONTAMINATION     method     limit/base     current     history1     history2       Fuel     WC Method     >5.     <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     limit/base     current     history1     history2       Iron     ppm     ASTM D5185m     >20     <1     1     1       Nickel     ppm     ASTM D5185m     >20     2     4     5       Lead     ppm     ASTM D5185m     >20     2     4     5       Lead     ppm     ASTM D5185m     >40     0     0     <1       Copper     ppm     ASTM D5185m     >15     <1     <1     <1       Cadmium     ppm     ASTM D5185m     0 <td< th=""><th>Machine Age</th><th>hrs</th><th>Client Info</th><th></th><th>30756</th><th>5800</th><th>5211</th></td<>	Machine Age	hrs	Client Info		30756	5800	5211
Sample Status     NORMAL     NORMAL     NORMAL     NORMAL     NORMAL       CONTAMINATION     method     imit/base     current     history1     history2       Fuel     WC Method     >5     <1.0     <1.0     <1.0       Water     WC Method     >0.2     NEG     NEG     NEG       Bilgool     WC Method     NEG     NEG     NEG     NEG       WEAR METALS     method     imit/base     current     history1     history2       Iron     ppm     ASTM D5185m     >100     19     21     27       Chromium     ppm     ASTM D5185m     >20     <1     1     1       Nickel     ppm     ASTM D5185m     >20     <2     4     5       Lead     ppm     ASTM D5185m     >20     2     4     5       Lead     ppm     ASTM D5185m     >20     2     4     5       Lead     ppm     ASTM D5185m     >1     0     <1     0       Vanadium </th <th>Oil Age</th> <th>hrs</th> <th>Client Info</th> <th></th> <th>150</th> <th>700</th> <th>700</th>	Oil Age	hrs	Client Info		150	700	700
CONTAMINATION     method     limit/base     current     history1     history2       Fuel     WC Method     >5     <1.0     <1.0     <1.0     <1.0       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     >100     19     21     27       Chromium     ppm     ASTM D5185m     >4     0     0     0       Titanium     ppm     ASTM D5185m     >3     0     0     0       Silver     ppm     ASTM D5185m     >20     2     4     5       Lead     ppm     ASTM D5185m     >40     0     0     0     1       Vanadium     ppm     ASTM D5185m     >15     <1     <1     <1       Vanadium     ppm     ASTM D5185m     0     0	Oil Changed		Client Info		Not Changd	Changed	Changed
Fuel     WC Method     >5     <1.0	Sample Status				NORMAL	NORMAL	NORMAL
Water     WC Method     >0.2     NEG     NEG     NEG     NEG       Glycol     WC Method     Imit/base     current     history1     history2       Iron     ppm     ASTM D5185m     >100     19     21     27       Chromium     ppm     ASTM D5185m     >20     <1     1     1       Nickel     ppm     ASTM D5185m     >3     0     0     0     1       Silver     ppm     ASTM D5185m     >3     0     0     0     1       Qapper     ppm     ASTM D5185m     >20     2     4     5       Lead     ppm     ASTM D5185m     >30     0     0     0     1       Vanadium     ppm     ASTM D5185m     >41     2     5     1     2     1       Vanadium     ppm     ASTM D5185m     10     0     0     0     0     0     1     1     1     1     1     1     1     1     1     1 <t< th=""><th>CONTAMINAT</th><th>ION</th><th>method</th><th>limit/base</th><th>current</th><th>history1</th><th>history2</th></t<>	CONTAMINAT	ION	method	limit/base	current	history1	history2
Glycol     WC Method     NEG     NEG     NEG       WEAR METALS     method     limit/base     current     history1     history2       Iron     ppm     ASTM D5185m     >20     <1     1     1       Nickel     ppm     ASTM D5185m     >20     <1     1     1       Nickel     ppm     ASTM D5185m     >3     0     0     0     0       Itanium     ppm     ASTM D5185m     >3     0     0     0     0       Aluminum     ppm     ASTM D5185m     >20     2     4     5     1     0     0     0     0     0     0     0     0     0     0     0     1     10     1     10     1     10     1 <td< th=""><th>Fuel</th><th></th><th>WC Method</th><th>&gt;5</th><th>&lt;1.0</th><th>&lt;1.0</th><th>&lt;1.0</th></td<>	Fuel		WC Method	>5	<1.0	<1.0	<1.0
Glycol     WC Method     NEG     NEG     NEG       WEAR METALS     method     limit/base     current     history1     history2       Iron     ppm     ASTM D5185m     >100     19     21     27       Chromium     ppm     ASTM D5185m     >20     <1     1     1       Nickel     ppm     ASTM D5185m     >4     0     0     0       Titanium     ppm     ASTM D5185m     >20     2     4     5       Lead     ppm     ASTM D5185m     >20     2     4     5       Lead     ppm     ASTM D5185m     >30     <1     2     5       Tin     ppm     ASTM D5185m     <1     <1     <1     <1       Vanadium     ppm     ASTM D5185m     0     0     3     <1       Cadmium     ppm     ASTM D5185m     0     0     3     <1       Cadmium     ppm     ASTM D5185m     0     0     0     0       B	Water		WC Method	>0.2	NEG	NEG	NEG
Iron     ppm     ASTM D5185m     >100     19     21     27       Chromium     ppm     ASTM D5185m     >20     <1     1     1       Nickel     ppm     ASTM D5185m     >4     0     0     0       Silver     ppm     ASTM D5185m     >3     0     0     0       Aluminum     ppm     ASTM D5185m     >20     2     4     5       Lead     ppm     ASTM D5185m     >20     2     4     5       Lead     ppm     ASTM D5185m     >20     2     5     1       Copper     ppm     ASTM D5185m     >330     <1     2     5       Tin     ppm     ASTM D5185m     >15     <1     <1     <1       Cadmium     ppm     ASTM D5185m     0     0     0     0     0       ADDTIVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185m     0     <1     <1 <th>Glycol</th> <th></th> <th>WC Method</th> <th></th> <th>NEG</th> <th></th> <th></th>	Glycol		WC Method		NEG		
Chromium     ppm     ASTM D5185m     >20     <1	WEAR METAL	S	method	limit/base	current	history1	history2
Chromium     ppm     ASTM D5185m     >20     <1			ASTM D5185m	>100	19	21	27
Nickel     ppm     ASTM D5185m     >4     0     0     0       Titanium     ppm     ASTM D5185m     >3     0     0     <1       Silver     ppm     ASTM D5185m     >3     0     0     0       Aluminum     ppm     ASTM D5185m     >20     2     4     5       Lead     ppm     ASTM D5185m     >20     2     4     5       Lead     ppm     ASTM D5185m     >330     <1     2     5       Tin     ppm     ASTM D5185m     >330     <1     <1     <1       Vanadium     ppm     ASTM D5185m     0     0     0     0       Cadmium     ppm     ASTM D5185m     0     0     0     0     0       Boron     ppm     ASTM D5185m     0     0     1     <1     <1       Barium     ppm     ASTM D5185m     0     <1     <1     <1     1029       Caluim     ppm     ASTM D5185m     0					-		
Titanium     ppm     ASTM D5185m     0     0     <1							
Silver     ppm     ASTM D5185m     >3     0     0     0       Aluminum     ppm     ASTM D5185m     >20     2     4     5       Lead     ppm     ASTM D5185m     >40     0     0     <1				- 1			
Aluminum     ppm     ASTM D5185m     >20     2     4     5       Lead     ppm     ASTM D5185m     >40     0     0     <1       Copper     ppm     ASTM D5185m     >330     <1     2     5       Tin     ppm     ASTM D5185m     >15     <1     <1     <1       Vanadium     ppm     ASTM D5185m     >15     <1     0     <1       Cadmium     ppm     ASTM D5185m     0     0     0     0       ADDITIVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185m     0     0     0     0       Molybdenum     ppm     ASTM D5185m     0     0     62     1029       Magnesium     ppm     ASTM D5185m     0     0     1131     1034       Phosphorus     ppm     ASTM D5185m     1070     1025     999     1131       Phosphorus     ppm     ASTM D5185m     1270     1270				>3			
Lead     ppm     ASTM D5185m     >40     0     0     <1							
Copper     ppm     ASTM D5185m     >330     <1							
Tin     ppm     ASTM D5185m     >15     <1					-		
Vanadium     ppm     ASTM D5185m     -     1     0     <1						_	
Cadmium     ppm     ASTM D5185m     0     0     0       ADDITIVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185m     0     0     3     <1				210			
ADDITIVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185m     0     0     3     <1       Barium     ppm     ASTM D5185m     0     0     0     0       Molybdenum     ppm     ASTM D5185m     60     58     59     62       Manganese     ppm     ASTM D5185m     0     <1     <1     <1       Magnesium     ppm     ASTM D5185m     1010     972     945     1029       Calcium     ppm     ASTM D5185m     1070     1025     999     1131       Phosphorus     ppm     ASTM D5185m     1270     1270     1231     1333       Sulfur     ppm     ASTM D5185m     2060     2997     2774     3534       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >20     21     1     2       Notasium     ppm     ASTM D5185m     >2							
Boron     ppm     ASTM D5185m     0     0     3     <1	Cadillium	ppm	AUTIW DUTUUIII		0	0	0
Barium     ppm     ASTM D5185m     0     0     0     0     0       Molybdenum     ppm     ASTM D5185m     60     58     59     62       Manganese     ppm     ASTM D5185m     0     <1     <1     <1       Magnesium     ppm     ASTM D5185m     1010     972     945     1029       Calcium     ppm     ASTM D5185m     1010     972     945     1029       Calcium     ppm     ASTM D5185m     1010     972     945     1029       Calcium     ppm     ASTM D5185m     1070     1025     9999     1131       Phosphorus     ppm     ASTM D5185m     1070     1231     1333       Sulfur     ppm     ASTM D5185m     2060     2997     2774     3534       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >20     <1     <1     2       INFRA-RED     method     limit/base </th <th></th> <th></th> <th>mathad</th> <th>limit/bass</th> <th>ourropt</th> <th>biotom</th> <th>biotory ()</th>			mathad	limit/bass	ourropt	biotom	biotory ()
Molybdenum     ppm     ASTM D5185m     60     58     59     62       Manganese     ppm     ASTM D5185m     0     <1     <1     <1       Magnesium     ppm     ASTM D5185m     1010     972     945     1029       Calcium     ppm     ASTM D5185m     1070     1025     999     1131       Phosphorus     ppm     ASTM D5185m     1070     1026     1023     1034       Zinc     ppm     ASTM D5185m     1270     1270     1231     1333       Sulfur     ppm     ASTM D5185m     2060     2997     2774     3534       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >20     <1     <1     2       Sodium     ppm     ASTM D5185m     >20     <1     <1     2       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7624							
Manganese     ppm     ASTM D5185m     0     <1	Boron		ASTM D5185m	0	0	3	<1
Magnesium     ppm     ASTM D5185m     1010     972     945     1029       Calcium     ppm     ASTM D5185m     1070     1025     999     1131       Phosphorus     ppm     ASTM D5185m     1150     1036     1023     1034       Zinc     ppm     ASTM D5185m     1270     1270     1231     1333       Sulfur     ppm     ASTM D5185m     2060     2997     2774     3534       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     4     5     4       Sodium     ppm     ASTM D5185m     >20     <1     <1     2       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     >3     1.6     1.1     1.2       Nitration     Abs/.mm     *ASTM D7624     >20     9.4     10.4     11.0       Sulfation     Abs/.lmm     *AST	Boron Barium		ASTM D5185m ASTM D5185m	0	0 0	3 0	<1 0
Calcium     ppm     ASTM D5185m     1070     1025     999     1131       Phosphorus     ppm     ASTM D5185m     1150     1036     1023     1034       Zinc     ppm     ASTM D5185m     1270     1270     1231     1333       Sulfur     ppm     ASTM D5185m     2060     2997     2774     3534       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     4     5     4       Sodium     ppm     ASTM D5185m     >20     <1     <1     2       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     >3     1.6     1.1     1.2       Nitration     Abs/cm     *ASTM D7624     >20     9.4     10.4     11.0       Sulfation     Abs/imm     *ASTM D7415     >30     22.1     21.4     22.0       FLUID DEGRADATION     method	Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	0 0 58	3 0 59	<1 0 62
Phosphorus     ppm     ASTM D5185m     1150     1036     1023     1034       Zinc     ppm     ASTM D5185m     1270     1270     1231     1333       Sulfur     ppm     ASTM D5185m     2060     2997     2774     3534       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     4     5     4       Sodium     ppm     ASTM D5185m     >25     4     6     7       Potassium     ppm     ASTM D5185m     >20     <11	Boron Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	0 0 58 <1	3 0 59 <1	<1 0 62 <1
Zinc     ppm     ASTM D5185m     1270     1270     1231     1333       Sulfur     ppm     ASTM D5185m     2060     2997     2774     3534       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     4     5     4       Sodium     ppm     ASTM D5185m     >20     <1     6     7       Potassium     ppm     ASTM D5185m     >20     <1     <1     2       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7624     >20     9.4     10.4     11.0       Sulfation     Abs/cm     *ASTM D7624     >20     9.4     10.4     11.0       Sulfation     Abs/.1mm     *ASTM D7415     >30     22.1     21.4     22.0       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *AST	Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	0 0 58 <1 972	3 0 59 <1 945	<1 0 62 <1 1029
Sulfur     ppm     ASTM D5185m     2060     2997     2774     3534       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     4     5     4       Sodium     ppm     ASTM D5185m     >25     4     6     7       Potassium     ppm     ASTM D5185m     >20     <1	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	0 0 58 <1 972 1025	3 0 59 <1 945 999	<1 0 62 <1 1029 1131
CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     4     5     4       Sodium     ppm     ASTM D5185m     >25     4     6     7       Potassium     ppm     ASTM D5185m     >20     <1     <1     2       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     >3     1.6     1.1     1.2       Nitration     Abs/cm     *ASTM D7624     >20     9.4     10.4     11.0       Sulfation     Abs/.1mm     *ASTM D7415     >30     22.1     21.4     22.0       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     15.7     17.6     18.0	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	0 0 58 <1 972 1025 1036	3 0 59 <1 945 999 1023	<1 0 62 <1 1029 1131 1034
Silicon     ppm     ASTM D5185m     >25     4     5     4       Sodium     ppm     ASTM D5185m     4     6     7       Potassium     ppm     ASTM D5185m     >20     <1	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	0 0 58 <1 972 1025 1036 1270	3 0 59 <1 945 999 1023 1231	<1 0 62 <1 1029 1131 1034 1333
Sodium     ppm     ASTM D5185m     4     6     7       Potassium     ppm     ASTM D5185m<>20     <1     <1     2       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844<>3     1.6     1.1     1.2       Nitration     Abs/cm     *ASTM D7624<>20     9.4     10.4     11.0       Sulfation     Abs/.1mm     *ASTM D7415<>30     22.1     21.4     22.0       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414<>25     15.7     17.6     18.0	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	0 0 58 <1 972 1025 1036 1270 2997	3 0 59 <1 945 999 1023 1231 2774	<1 0 62 <1 1029 1131 1034 1333 3534
Potassium     ppm     ASTM D5185m     >20     <1	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 1010 1070 1150 1270 2060	0 0 58 <1 972 1025 1036 1270 2997 current	3 0 59 <1 945 999 1023 1231 2774 history1	<1 0 62 <1 1029 1131 1034 1333 3534 history2
INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     >3     1.6     1.1     1.2       Nitration     Abs/cm     *ASTM D7624     >20     9.4     10.4     11.0       Sulfation     Abs/.1mm     *ASTM D7415     >30     22.1     21.4     22.0       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     15.7     17.6     18.0	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	0 0 58 <1 972 1025 1036 1270 2997 current 4	3 0 59 <1 945 999 1023 1231 2774 history1 5	<1 0 62 <1 1029 1131 1034 1333 3534 history2 4
Soot %     %     *ASTM D7844     >3     1.6     1.1     1.2       Nitration     Abs/cm     *ASTM D7624     >20     9.4     10.4     11.0       Sulfation     Abs/.1mm     *ASTM D7415     >30     22.1     21.4     22.0       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     15.7     17.6     18.0	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 <b>limit/base</b>	0 0 58 <1 972 1025 1036 1270 2997 current 4 4	3 0 59 <1 945 999 1023 1231 2774 <b>history1</b> 5 6	<1 0 62 <1 1029 1131 1034 1333 3534 history2 4 7
Nitration     Abs/cm     *ASTM D7624     >20     9.4     10.4     11.0       Sulfation     Abs/.1mm     *ASTM D7415     >30     22.1     21.4     22.0       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     15.7     17.6     18.0	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm 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 >20	0 0 58 <1 972 1025 1036 1270 2997 current 4 4 4 4	3 0 59 <1 945 999 1023 1231 2774 history1 5 6 4	<1 0 62 <1 1029 1131 1034 1333 3534 history2 4 7 2
Sulfation     Abs/.1mm     *ASTM D7415     >30     22.1     21.4     22.0       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     15.7     17.6     18.0	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm 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 >20	0 0 58 <1 972 1025 1036 1270 2997 current 4 4 4 4	3 0 59 <1 945 999 1023 1231 2774 history1 5 6 4	<1 0 62 <1 1029 1131 1034 1333 3534 history2 4 7 2
FLUID DEGRADATION method limit/base current history1 history2   Oxidation Abs/.1mm *ASTM D7414 >25 15.7 17.6 18.0	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 <b>limit/base</b> >20	0 0 58 <1 972 1025 1036 1270 2997 current 4 4 4 <1 current	3 0 59 <1 945 999 1023 1231 2774 history1 5 6 <1 history1	<1 0 62 <1 1029 1131 1034 1333 3534 history2 4 7 2 2 history2
Oxidation Abs/.1mm *ASTM D7414 >25 15.7 17.6 18.0	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3	0 0 58 <1 972 1025 1036 1270 2997 <i>current</i> 4 4 4 <1 <i>current</i>	3 0 59 <1 945 999 1023 1231 2774 history1 5 6 <1 history1 1.1	<1 0 62 <1 1029 1131 1034 1333 3534 history2 4 7 2 4 7 2 history2 1.2
	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 220 220 1imit/base >22 20	0 0 58 <1 972 1025 1036 1270 2997 <i>current</i> 4 4 4 <1 <i>current</i> 1.6 9.4	3 0 59 <1 945 999 1023 1231 2774 history1 5 6 <1 5 6 <1 history1 1.1 1.1	<1 0 62 <1 1029 1131 1034 1333 3534 history2 4 7 2 4 7 2 history2 1.2 1.2 11.0
Base Number (BN)     mg KOH/g     ASTM D2896     9.8     10.1     7.4     8.2	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 20 225 20 20 3 20 3 20 20 20 20 20 20 20 20 20 20 20 20 20	0 0 58 <1 972 1025 1036 1270 2997 <i>current</i> 4 4 4 <1 <i>current</i> 1.6 9.4 22.1	3 0 59 <1 945 999 1023 1231 2774 history1 5 6 <1 5 6 <1 history1 1.1 1.0.4 21.4	<1 0 62 <1 1029 1131 1034 1333 3534 <b>history2</b> 4 7 2 <b>history2</b> 1.2 1.2 1.2 11.0 22.0
	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 TS ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 2060 225 20 220 220 20 3 20 20 20 20 20 20 20 20 20 20 20 20 20	0 0 58 <1 972 1025 1036 1270 2997 current 4 4 4 5 1 current 1.6 9.4 22.1 current	3 0 59 <1 945 999 1023 1231 2774 history1 5 6 <1 5 6 <1 1.1 10.4 21.4 history1	<1 0 62 <1 1029 1131 1034 1333 3534 history2 4 7 2 4 7 2 history2 1.2 11.0 22.0 history2

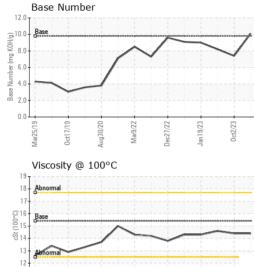


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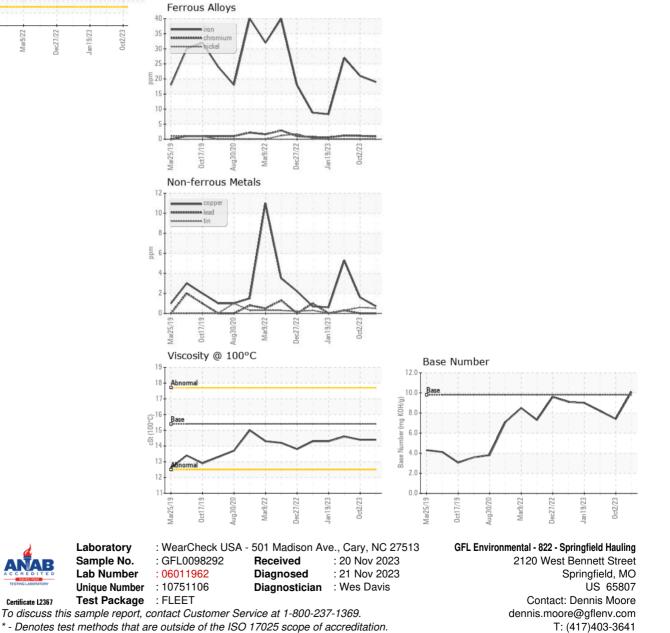
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Aug 30/20

# **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	14.4	14.4	14.6
GRAPHS						



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