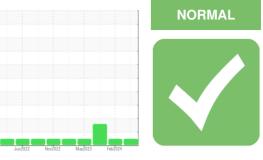


# **OIL ANALYSIS REPORT**

Sample Rating Trend





945001-152555 Component Natural Gas Engine Fluid

Fluid PETRO CANADA DURON GEO LD 15W40 (8 GAL)

### DIAGNOSIS Recommendation

Resample at the next service interval to monitor.

Machine Id

#### Wear

All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil.

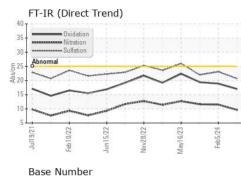
### Fluid Condition

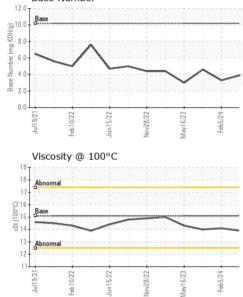
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Number     Client Info     ZFL0110800     GFL0088459     GFL0073223       Sample Date     Client Info     24 May 2024     05 Feb 2024     16 Nov 2023       Machine Age     hrs     Client Info     500     600     19391       Oil Age     hrs     Client Info     600     600     19391       Oil Age     hrs     Client Info     600     600     19391       Oil Age     hrs     Client Info     600     600     19391       Oil Age     Current     History1     History2     History1     History2       Water     WC Method     >0.1     NEG     NCG     NCG       Normum     ppm     ASTM 05185m     >5     2     3     2       Inon     ppm     ASTM 05185m     >5     2     3     3     1       Silver     ppm     ASTM 05185m     >5     2     3     3     1       Inn     ppm     ASTM 05185m     >5     2     3     3     1       <	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age     hrs     Client Info     21537     20955     20389       Oil Age     hrs     Client Info     600     600     19391       Oil Changed     Client Info     Changed     Changed     Changed     Changed       Sample Status     Imit/base     current     history1     history2       Water     WC Method     >0.1     NEG     NEG     NEG       Wetar     WC Method     >0.1     NEG     NEG     NEG       Iron     ppm     ASTM D5185m     >5     2     3     2       Nickel     ppm     ASTM D5185m     >5     2     3     3       Silver     ppm     ASTM D5185m     >3     0     0     0       Aluminum     ppm     ASTM D5185m     >40     <1     8     7       Silver     ppm     ASTM D5185m     >40     <1     2     4       Vanadium     ppm     ASTM D5185m     >50     2     9     4       Tin     ppm	Sample Number		Client Info		GFL0110800	GFL0088459	GFL0073226
Oil Age     Irs     Client Info     600     600     19391       Oil Changed     Client Info     Changed     Changed     Changed       Sample Status     Image     NORMAL     NORMAL     ABNORMAL       CONTAMINATION     method     Imit/base     current     History1     History2       Water     WC Method     >0.1     NEG     NEG     NEG       Water     WC Method     >0.1     NEG     NEG     NEG       Uron     ppm     ASTM D5185m     >5     2     3     2       Iron     ppm     ASTM D5185m     >5     <1     <1     <1       Itanium     ppm     ASTM D5185m     >3     0     0     0       Aluminum     ppm     ASTM D5185m     >4     <1     2     4       Copper     ppm     ASTM D5185m     0     <1     <1     <1       Cadmium     ppm     ASTM D5185m     0     <1     <1     <1     <1     1       Asadium	Sample Date		Client Info		24 May 2024	05 Feb 2024	16 Nov 2023
Oil Changed Sample StatusClient InfoChanged NORMALChanged NORMALChanged ABNORMALCONTAMINATIONmethodlimit/basecurrenthistory1history2WaterWC Method>0.1NEGNEGNEGWEAR METALSmethodlimit/basecurrenthistory1history2IronppmASTM D5185m>50232019ChromiumppmASTM D5185m>50232019ChromiumppmASTM D5185m>50213121NickelppmASTM D5185m>50213131ChangedppmASTM D5185m>50213131SilverppmASTM D5185m>30000AluminumppmASTM D5185m>40<1853CopperppmASTM D5185m>40<1817CadmiumppmASTM D5185m5016419BarumppmASTM D5185m50626060ManganeseppmASTM D5185m50626060ManganeseppmASTM D5185m50614119BarumppmASTM D5185m50626060ManganeseppmASTM D5185m50626060ManganeseppmASTM D5185m50515720CalciumppmASTM D5185m50 </th <th>Machine Age</th> <th>hrs</th> <th>Client Info</th> <th></th> <th>21537</th> <th>20955</th> <th>20389</th>	Machine Age	hrs	Client Info		21537	20955	20389
Sample Status     NORMAL     NORMAL     NORMAL     ABNORMAL       CONTAMINATION     method     limit/base     current     history1     history2       Water     WC Method     >0.1     NEG     NEG     NEG       Wetar     wC Method     >0.1     NEG     NEG     NEG       Wetar     wC Method     >50     23     20     19       Chromium     ppm     ASTM D5185m     >50     23     20     19       Chromium     ppm     ASTM D5185m     >50     21     3     2       Nickel     ppm     ASTM D5185m     >50     0     0     0       Aluminum     ppm     ASTM D5185m     >25     3     3     3       Lead     ppm     ASTM D5185m     >40     <1     8     7       Copper     ppm     ASTM D5185m     >0     <1     2     4       Vanadium     ppm     ASTM D5185m     0     <1     1     <1       Nordepm     ASTM	Oil Age	hrs	Client Info		600	600	19391
CONTAMINATION     method     limit/base     current     history1     history2       Water     WC Method<>0.1     NEG     NEG     NEG       Werker     WC Method<>0.1     NEG     NEG     NEG       Water     WC Method<>0.1     NEG     NEG     NEG       Werker     ppm     ASTM D5185m     >50     23     20     19       Chromium     ppm     ASTM D5185m     >50     23     20     19       Chromium     ppm     ASTM D5185m     >4     <1     3     <1       Nickel     ppm     ASTM D5185m     >3     0     0     0       Aluminum     ppm     ASTM D5185m     >3     0     <1     8     7       Copper     ppm     ASTM D5185m     >150     2     9     4     <1       Cadmium     ppm     ASTM D5185m     >150     2     9     4       Cadmium     ppm     ASTM D5185m     0     <1     0     <1       Cadmium </th <th>Oil Changed</th> <th></th> <th>Client Info</th> <th></th> <th>Changed</th> <th>Changed</th> <th>Changed</th>	Oil Changed		Client Info		Changed	Changed	Changed
Water     WC Method     >0.1     NEG     NEG     NEG       WEAR METALS     method     limit/base     current     history1     history2       Iron     ppm     ASTM D5185m     >50     23     20     19       Ohromium     ppm     ASTM D5185m     >5     2     3     2       Nickel     ppm     ASTM D5185m     >4     <1     3     <1       Silver     ppm     ASTM D5185m     >3     0     0     0       Aluminum     ppm     ASTM D5185m     >3     3     3     3     3       Lead     ppm     ASTM D5185m     >40     <1     8     7       Copper     ppm     ASTM D5185m     >4     <1     2     4       Vanadium     ppm     ASTM D5185m     0     <1     0     <1       Cadmium     ppm     ASTM D5185m     50     16     4     19       Barium     ppm     ASTM D5185m     50     515     720	Sample Status				NORMAL	NORMAL	ABNORMAL
WEAR METALS     method     limit/base     current     history1     history2       Iron     ppm     ASTM D5185m     >50     23     20     19       Chromium     ppm     ASTM D5185m     >50     23     20     19       Chromium     ppm     ASTM D5185m     >50     21     3     2       Nickel     ppm     ASTM D5185m     >50     <1     <1     <1       Silver     ppm     ASTM D5185m     >50     <1     <1     <1     <1       Silver     ppm     ASTM D5185m     >20     0     0     0       Aluminum     ppm     ASTM D5185m     >150     2     9     4       Tin     ppm     ASTM D5185m     >4     <1     2     4       Vanadium     ppm     ASTM D5185m     0     <1     0        Copper     ppm     ASTM D5185m     50     16     4     19       Barium     ppm     ASTM D5185m     50     16 <th>CONTAMINAT</th> <th>ION</th> <th>method</th> <th>limit/base</th> <th>current</th> <th>history1</th> <th>history2</th>	CONTAMINAT	ION	method	limit/base	current	history1	history2
Iron     ppm     ASTM D5185m     >50     23     20     19       Chromium     ppm     ASTM D5185m     >5     2     3     2       Nickel     ppm     ASTM D5185m     >4     <1     3     <1       Titanium     ppm     ASTM D5185m     >5     <1     <1     <1       Silver     ppm     ASTM D5185m     >3     0     0     0       Aluminum     ppm     ASTM D5185m     >40     <1     8     7       Copper     ppm     ASTM D5185m     >40     <1     8     7       Copper     ppm     ASTM D5185m     >40     <1     8     7       Cadmium     ppm     ASTM D5185m     >40     <1     0     <1       Cadmium     ppm     ASTM D5185m     5     16     4     19       Barium     ppm     ASTM D5185m     5     5     5     720       Barium     ppm     ASTM D5185m     560     545     515	Water		WC Method	>0.1	NEG	NEG	NEG
Chromium     ppm     ASTM D5185m     >5     2     3     2       Nickel     ppm     ASTM D5185m     >4     <1     3     <1       Titanium     ppm     ASTM D5185m     >5     <1     <1     <1     <1       Silver     ppm     ASTM D5185m     >3     0     0     0       Aluminum     ppm     ASTM D5185m     >25     3     3     3       Lead     ppm     ASTM D5185m     >40     <1     8     7       Copper     ppm     ASTM D5185m     >40     <1     8     7       Copper     ppm     ASTM D5185m     >40     <1     8     7       Copper     ppm     ASTM D5185m     >40     <1     8     7       Cadmium     ppm     ASTM D5185m     >4     <1     2     4       Vanadium     ppm     ASTM D5185m     50     16     4     19       Barium     ppm     ASTM D5185m     50     62	WEAR METAL	S	method	limit/base	current	history1	history2
Nickel     ppm     ASTM D5185m     >4     <1	Iron	ppm	ASTM D5185m	>50	23	20	19
Titanium     ppm     ASTM D5185m     >5     <1	Chromium	ppm	ASTM D5185m	>5	2	3	2
Silver     ppm     ASTM D5185m     >3     0     0     0       Aluminum     ppm     ASTM D5185m     >25     3     3     3       Lead     ppm     ASTM D5185m     >40     <1	Nickel	ppm	ASTM D5185m	>4	<1	3	<1
Aluminum   ppm   ASTM D5185m   >25   3   3   3     Lead   ppm   ASTM D5185m   >40   <1   8   7     Copper   ppm   ASTM D5185m   >150   2   9   4     Tin   ppm   ASTM D5185m   >4   <1   2   4     Vanadium   ppm   ASTM D5185m   >4   <1   2   4     Cadmium   ppm   ASTM D5185m   0   <1   <1   <1     Cadmium   ppm   ASTM D5185m   50   16   4   19     Boron   ppm   ASTM D5185m   50   62   60   60     Marganese   ppm   ASTM D5185m   780   737   661   685     Zinc   ppm   ASTM D5185m   780   737	Titanium	ppm	ASTM D5185m	>5	<1	<1	<1
Lead     ppm     ASTM D5185m     >40     <1	Silver	ppm	ASTM D5185m	>3	0	0	0
Copper     ppm     ASTM D5185m     >150     2     9     4       Tin     ppm     ASTM D5185m     >4     <1     2     4       Vanadium     ppm     ASTM D5185m     0     <1     <1     <1       Cadmium     ppm     ASTM D5185m     0     <1     0     <1     0       ADDITIVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185m     50     16     4     19       Barium     ppm     ASTM D5185m     50     62     60     60       Manganese     ppm     ASTM D5185m     50     62     61     485       Vanadium     ppm     ASTM D5185m     50     515     720       Calcium     ppm     ASTM D5185m     780     737     661     685       Zinc     ppm     ASTM D5185m     720     2494     2526     2439       CONTAMINANTS     method     limit/base     current     hi	Aluminum	ppm	ASTM D5185m	>25	3	3	3
Tin     ppm     ASTM D5185m     >4     <1	Lead	ppm	ASTM D5185m	>40	<1	8	7
Vanadium     ppm     ASTM D5185m     0     <1	Copper	ppm	ASTM D5185m	>150	2	9	4
Cadmium     ppm     ASTM D5185m     0     <1	Tin	ppm	ASTM D5185m	>4	<1	2	4
ADDITIVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185m     50     16     4     19       Barium     ppm     ASTM D5185m     50     62     60     60       Molybdenum     ppm     ASTM D5185m     50     62     60     60       Magnesium     ppm     ASTM D5185m     50     62     61     61       Magnesium     ppm     ASTM D5185m     560     545     515     720       Calcium     ppm     ASTM D5185m     1510     1602     1455     1372       Phosphorus     ppm     ASTM D5185m     780     737     661     685       Zinc     ppm     ASTM D5185m     2040     2494     2526     2439       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >20     2     2     <1       INFRA-RED     method     limit/base <t< th=""><th>Vanadium</th><th>ppm</th><th>ASTM D5185m</th><th></th><th>0</th><th>&lt;1</th><th>&lt;1</th></t<>	Vanadium	ppm	ASTM D5185m		0	<1	<1
Boron     ppm     ASTM D5185m     50     16     4     19       Barium     ppm     ASTM D5185m     5     <1     15     0       Molybdenum     ppm     ASTM D5185m     50     62     60     60       Magnese     ppm     ASTM D5185m     0     <1     <1     <1       Magnesium     ppm     ASTM D5185m     560     545     515     720       Calcium     ppm     ASTM D5185m     1510     1602     1455     1372       Phosphorus     ppm     ASTM D5185m     780     737     661     685       Zinc     ppm     ASTM D5185m     870     968     882     959       Sulfur     ppm     ASTM D5185m     2040     2494     2526     2439       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >20     2     2     1       INFRA-RED     method     limit/base     cu	Cadmium	ppm	ASTM D5185m		0	<1	0
Barium     ppm     ASTM D5185m     5     <1	ADDITIVES		method	limit/base		historv1	historv2
Molybdenum     ppm     ASTM D5185m     50     62     60     60       Manganese     ppm     ASTM D5185m     0     <1     <1     <1       Magnesium     ppm     ASTM D5185m     560     545     515     720       Calcium     ppm     ASTM D5185m     1510     1602     1455     1372       Phosphorus     ppm     ASTM D5185m     780     737     6611     685       Zinc     ppm     ASTM D5185m     870     968     882     959       Sulfur     ppm     ASTM D5185m     2040     2494     2526     2439       CONTAMINANT     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >20     2     2     <1       INFRA-RED     ppm     ASTM D5185m     >20     2     2     <1       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     'ASTM D7624 <t< th=""><th>7188111720</th><th></th><th>mothod</th><th>in the baco</th><th>ounonit</th><th>motory</th><th></th></t<>	7188111720		mothod	in the baco	ounonit	motory	
Manganese     ppm     ASTM D5185m     0     <1		ppm					
Magnesium     ppm     ASTM D5185m     560     545     515     720       Calcium     ppm     ASTM D5185m     1510     1602     1455     1372       Phosphorus     ppm     ASTM D5185m     780     737     661     685       Zinc     ppm     ASTM D5185m     870     968     882     959       Sulfur     ppm     ASTM D5185m     870     968     882     2439       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     8     8     25       Sodium     ppm     ASTM D5185m     >20     2     2     <1       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     0.2     0     0       Nitration     Abs/.mm     *ASTM D7624     >20     9.6     11.5     11.6       Sulfation     Abs/.Imm     *ASTM D7645     >30	Boron Barium		ASTM D5185m	50	16	4	19
Calcium     ppm     ASTM D5185m     1510     1602     1455     1372       Phosphorus     ppm     ASTM D5185m     780     737     661     685       Zinc     ppm     ASTM D5185m     870     968     882     959       Sulfur     ppm     ASTM D5185m     2040     2494     2526     2439       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     8     8     ▲ 25       Sodium     ppm     ASTM D5185m     >20     2     2     <1       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D5185m     >20     2     2     <1       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     0.2     0     0       Nitration     Abs/.mm     *ASTM D745     >30     20.7 </th <th>Boron Barium</th> <th>ppm</th> <th>ASTM D5185m ASTM D5185m ASTM D5185m</th> <th>50 5 50</th> <th>16 &lt;1 62</th> <th>4 15</th> <th>19 0</th>	Boron Barium	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50	16 <1 62	4 15	19 0
Phosphorus     ppm     ASTM D5185m     780     737     661     685       Zinc     ppm     ASTM D5185m     870     968     882     959       Sulfur     ppm     ASTM D5185m     2040     2494     2526     2439       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     8     8     ▲ 25       Sodium     ppm     ASTM D5185m     >20     2     2     <1       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D5185m     >20     2     <1       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     0.2     0     0       Nitration     Abs/cm     *ASTM D7624     >20     9.6     11.5     11.6       Sulfation     Abs/imm     *ASTM D7415     >30     20.7 <td< th=""><th>Boron Barium Molybdenum</th><th>ppm ppm</th><th>ASTM D5185m ASTM D5185m ASTM D5185m</th><th>50 5 50</th><th>16 &lt;1 62</th><th>4 15 60</th><th>19 0 60</th></td<>	Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50	16 <1 62	4 15 60	19 0 60
Zinc     ppm     ASTM D5185m     870     968     882     959       Sulfur     ppm     ASTM D5185m     2040     2494     2526     2439       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     8     8     ▲ 25       Sodium     ppm     ASTM D5185m     >20     2     2     <1       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D784#     0.2     0     0       Nitration     Abs/cm     *ASTM D7624     >20     9.6     11.5     11.6       Sulfation     Abs/rm     *ASTM D7624     >20     9.6     11.5     12.0       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     17.0     18.9     19.4	Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560	16 <1 62 <1	4 15 60 <1	19 0 60 <1 720
SulfurppmASTM D5185m2040249425262439CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>2588▲25SodiumppmASTM D5185m>20963PotassiumppmASTM D5185m>2022<1INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D78440.200NitrationAbs/cm*ASTM D7624>209.611.511.6SulfationAbs/tm*ASTM D7415>3020.723.122.0FLUID DEGRADATION methodlimit/basecurrenthistory1history2OxidationAbs/.1mm*ASTM D7414>2517.018.919.4	Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560	16 <1 62 <1 545	4 15 60 <1 515	19 0 60 <1 720
CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>2588▲ 25SodiumppmASTM D5185m963PotassiumppmASTM D5185m>2022<1INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D78440.200NitrationAbs/cm*ASTM D7624>209.611.511.6SulfationAbs/tm*ASTM D7415>3020.723.122.0FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/.tmm*ASTM D7414>2517.018.919.4	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780	16 <1 62 <1 545 1602 737	4 15 60 <1 515 1455 661	19 0 60 <1 720 1372 685
Silicon     ppm     ASTM D5185m     >25     8     8     ▲ 25       Sodium     ppm     ASTM D5185m     9     6     3       Potassium     ppm     ASTM D5185m     >20     2     2     <1       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     0.2     0     0       Nitration     Abs/cm     *ASTM D7624     >20     9.6     11.5     11.6       Sulfation     Abs/.tmm     *ASTM D7415     >30     20.7     23.1     22.0       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.tmm     *ASTM D7414     >25     17.0     18.9     19.4	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	50 5 50 0 560 1510 780	16 <1 62 <1 545 1602 737	4 15 60 <1 515 1455 661	19 0 60 <1 720 1372 685
Sodium     ppm     ASTM D5185m     9     6     3       Potassium     ppm     ASTM D5185m     >20     2     2     <1       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     0.2     0     0       Nitration     Abs/cm     *ASTM D7624     >20     9.6     11.5     11.6       Sulfation     Abs/.1mm     *ASTM D7415     >30     20.7     23.1     22.0       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     17.0     18.9     19.4	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	50 5 50 0 560 1510 780 870	16 <1 62 <1 545 1602 737 968	4 15 60 <1 515 1455 661 882	19 0 60 <1 720 1372 685 959
Potassium     ppm     ASTM D5185m     >20     2     2     <1	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780 870 2040	16 <1 62 <1 545 1602 737 968 2494	4 15 60 <1 515 1455 661 882 2526	19 0 60 <1 720 1372 685 959 2439
INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     0.2     0     0       Nitration     Abs/cm     *ASTM D7624     >20     9.6     11.5     11.6       Sulfation     Abs/.imm     *ASTM D7624     >20     9.6     11.5     12.0       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.imm     *ASTM D7414     >25     17.0     18.9     19.4	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	50 5 50 0 560 1510 780 870 2040	16 <1 62 <1 545 1602 737 968 2494 current	4 15 60 <1 515 1455 661 882 2526 history1	19 0 60 <1 720 1372 685 959 2439 history2
Soot %     %     *ASTM D7844     0.2     0     0       Nitration     Abs/cm     *ASTM D7624     >20     9.6     11.5     11.6       Sulfation     Abs/.1mm     *ASTM D7415     >30     20.7     23.1     22.0       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     17.0     18.9     19.4	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 <b>method</b>	50 5 50 0 560 1510 780 870 2040	16 <1 62 <1 545 1602 737 968 2494 current 8	4 15 60 <1 515 1455 661 882 2526 history1 8	19 0 60 <1 720 1372 685 959 2439 history2 ▲ 25
Nitration     Abs/cm     *ASTM D7624     >20     9.6     11.5     11.6       Sulfation     Abs/.tmm     *ASTM D7415     >30     20.7     23.1     22.0       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.tmm     *ASTM D7414     >25     17.0     18.9     19.4	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 ASTM D5185m	50 50 50 560 1510 780 870 2040 <b>limit/base</b> >25	16 <1 62 <1 545 1602 737 968 2494 current 8 9	4 15 60 <1 515 1455 661 882 2526 history1 8 6	19 0 60 <1 720 1372 685 959 2439 2439 history2 25 3
Sulfation     Abs/.1mm     *ASTM D7415     >30     20.7     23.1     22.0       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     17.0     18.9     19.4	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	50 5 50 0 560 1510 780 870 2040 2040 <b>limit/base</b> >25	16 <1 62 <1 545 1602 737 968 2494 current 8 9 2	4 15 60 <1 515 1455 661 882 2526 history1 8 6 2	19 0 60 <1 720 1372 685 959 2439 history2 ▲ 25 3 <1
FLUID DEGRADATION method limit/base current history1 history2   Oxidation Abs/.1mm *ASTM D7414 >25 17.0 18.9 19.4	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	50 5 50 0 560 1510 780 870 2040 2040 <b>limit/base</b> >25	16 <1 62 <1 545 1602 737 968 2494 current 8 9 2 2	4 15 60 <1 515 1455 661 882 2526 history1 8 6 2 2 history1	19 0 60 <1 720 1372 685 959 2439 2439 bistory2 25 3 <1 kistory2
Oxidation Abs/.1mm *ASTM D7414 >25 17.0 18.9 19.4	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	50 5 50 0 560 1510 780 870 2040 2040 2040 2040 225 >25 >20	16 <1 62 <1 545 1602 737 968 2494 current 8 9 2 2 current 0.2	4 15 60 <1 515 1455 661 882 2526 history1 8 6 2 history1 0	19 0 60 <1 720 1372 685 959 2439 history2 25 3 <1 25 3 <1 history2
	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	50 5 50 0 560 1510 780 870 2040 limit/base >25 >20 limit/base	16 <1 62 <1 545 1602 737 968 2494 <i>current</i> 8 9 2 2 <i>current</i> 0.2 9.6	4 15 60 <1 515 1455 661 882 2526 history1 8 6 2 history1 0 11.5	19 0 60 <1 720 1372 685 959 2439 history2 ▲ 25 3 <1 × 1 history2 0 11.6
	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	50 50 50 150 780 870 2040 <b>imit/base</b> >25 <b>imit/base</b> >20	16 <1 62 <1 545 1602 737 968 2494 <u>current</u> 8 9 2 2 <u>current</u> 0.2 9.6 20.7	4 15 60 <1 515 1455 661 882 2526 history1 8 6 2 history1 0 11.5 23.1	19 0 60 <1 720 1372 685 959 2439 bistory2 25 3 <1 25 3 <1 history2 0 11.6 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 D7624	50 50 560 1510 780 870 2040 2040 225 225 220 220 imit/base 220 30 imit/base	16 <1 62 <1 545 1602 737 968 2494 <i>current</i> 8 9 2 2 <i>current</i> 0.2 9.6 20.7	4 15 60 <1 515 1455 661 882 2526 history1 8 6 2 history1 0 11.5 23.1 history1	19 0 60 <1 720 1372 685 959 2439 history2 ↓ 25 3 <1 ↓ history2 0 11.6 22.0 ↓



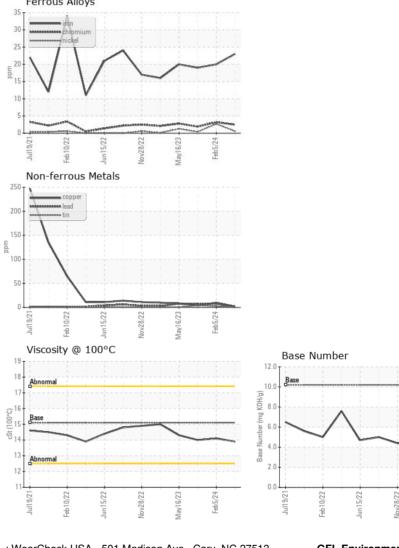
## **OIL ANALYSIS REPORT**

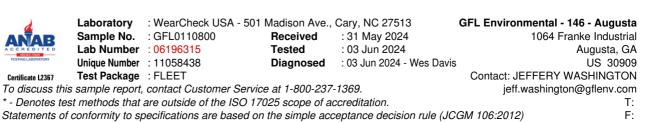




VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.1	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPE	DTIES	method	limit/base	current	history1	history2
		methou	IIIIII/Dase	current	TIISTOLA	TIIStOLYZ
Visc @ 100°C	cSt	ASTM D445	15.1	13.9	14.1	14.0
GRAPHS						

Ferrous Alloys





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Certificate 12367

Submitted By: CHRISTOPHER FARRER

Feb5/24

May16/23