

## **OIL ANALYSIS REPORT**



Machine Id **2001** Component **Diesel Engine** Fluid **DIESEL ENGINE OIL SAE 15W40 (--- GAL)** 

#### DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor.

#### Wear

All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil.

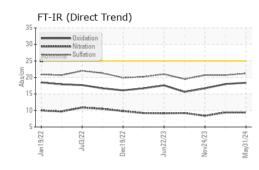
### Fluid Condition

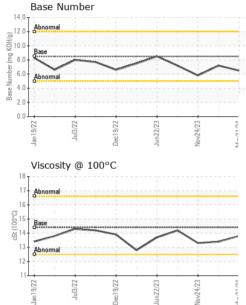
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Date     Client Info     31 May 2024     06 Feb 2024     24 Nov 2023       Machine Age     hrs     Client Info     94139     0     83236       Oil Age     hrs     Client Info     6000     0     6000       Sample Status     Client Info     Changed     Changed     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       Glycol     WC Method     >0.0     12     9     7       Chromium     ppm     ASTM 05185m     >100     12     9     7       Chromium     ppm     ASTM 05185m     >20     0     <1     1     1       Silver     ppm     ASTM 05185m     >3     0     0     0     1     2       Trainum     ppm     ASTM 05185m     >30     1     1     2     <	SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Date     Client Info     31 May 2024     06 Feb 2024     24 Nov 2023       Machine Age     hrs     Client Info     94139     0     63236       Oll Age     hrs     Client Info     6000     0     6000       Oll Age     NoRMAL     NORMAL     NORMAL     NORMAL     NORMAL       Sample Status     Imit bod     Imit base     current     History1     History2       Fuel     WC Method     >5     <1.0     <1.0     <1.0       Water     WC Method     >0.2     NEG     NEG     NEG       Water     VC Method     >0     1     0     <1.0       VEAR METALS     method     Imit/base     current     History1     History2       Iron     ppm     ASTM D5185m     >100     12     9     7       Iranium     ppm     ASTM D5185m     >20     3     4     7       Istau     ppm     ASTM D5185m     >3     0     0     1     2     1       Istau	Sample Number		Client Info		WC0887568	WC0887591	WC0844929
Oil Age     hrs     Client Info     6000     0     6000       Oil Changed     Client Info     Changed     Changed     Changed       Sample Status     Imit/base     current     NORMAL     NORMAL       CONTAMINATION     method     imit/base     current     history1     statory2       Fuel     WC Method     >5     <1.0     <1.0     <1.0       Water     WC Method     >0.2     NEG     NEG     NEG       Water     WC Method     >0.2     NEG     NEG     NEG       Water     ppm     ASTM D5185m     >100     12     9     7       Chromium     ppm     ASTM D5185m     >20     0     <11     <1       Nickel     ppm     ASTM D5185m     >30     0     0     <11       Silver     ppm     ASTM D5185m     >30     0     <11     21       Cadmium     ppm     ASTM D5185m     >30     0     <11     <11  Cadmium     ppm     ASTM D5185m	Sample Date		Client Info		31 May 2024	06 Feb 2024	24 Nov 2023
Oil Changed Client Info Changed NORMAL Changed NORMAL Changed NORMAL Changed NORMAL Changed NORMAL   CONTAMINATION method limit/base current history1 history2   Fuel WC Method >0.2 NEG NEG NEG   Glycol WC Method >0.2 NEG NEG NEG   Ver Are METALS method limit/base current history1 history2   Iron ppm ASTM D5185m >100 12 9 7   Chromium ppm ASTM D5185m >4 0 0 -1   Silver ppm ASTM D5185m >3 0 0 -1   Silver ppm ASTM D5185m >3 0 0 -1   Copper ppm ASTM D5185m >30 1 1 2   Tin ppm ASTM D5185m >30 1 1 2   Cadmium ppm ASTM D5185m >30 0 -1   Cadmium ppm ASTM D5185m 100 0 -1   Barium ppm ASTM D5185m 100 71 66 74   Maganese ppm AS	Machine Age	hrs	Client Info		94139	0	83236
Sample Status     Image: Morrial status     NORMAL     NORMAL     NORMAL     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       Wear     WC Method     NEG     NEG     NEG     NEG       Wear     WC Method     NEG     NEG     NEG     NEG       Wear     ppm     ASTM D5185m     200     0     <1     <1       Chromium     ppm     ASTM D5185m     200     0     <1     <1       Nickel     ppm     ASTM D5185m     200     3     4     7       Lead     ppm     ASTM D5185m     200     3     4     7       Lead     ppm     ASTM D5185m     200     0     <1     <1       Cadmium     ppm     ASTM D5185m     10     0     <1     <1       Vanaduum	Oil Age	hrs	Client Info		6000	0	6000
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     NEG     NEG     NEG     NEG       WEAR METALS     method     limit/base     current     history1     history2       Iron     ppm     ASTM D5185m     >100     12     9     7       Chromium     ppm     ASTM D5185m     >4     0     0     0       Titanium     ppm     ASTM D5185m     >4     0     0     0       Aluminum     ppm     ASTM D5185m     >3     0     0     0     1     2     1       Copper     ppm     ASTM D5185m     >30     1     1     2     1       Caded     ppm     ASTM D5185m     >10     0     0     0       Copper     ppm     ASTM D5185m     100     0	Oil Changed		Client Info		Changed	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     12     9     7       Chromium     ppm     ASTM D5185m     >20     0     <1     <1       Nickel     ppm     ASTM D5185m     >4     0     0     0       Silver     ppm     ASTM D5185m     >3     0     0     0       Silver     ppm     ASTM D5185m     >3     0     0     0     1       Silver     ppm     ASTM D5185m     >20     3     4     7       Lead     ppm     ASTM D5185m     >40     0     0     0     1       Capper     ppm     ASTM D5185m     >10     0     0     0     1       Vanadium     ppm     ASTM D5185m     100     71     66     74       Mangainese     ppm     ASTM D5185m	CONTAMINATIO	N	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     >100     12     9     7       Chromium     ppm     ASTM D5185m     >20     0     <1     <1       Nickel     ppm     ASTM D5185m     >4     0     0     0       Silver     ppm     ASTM D5185m     >3     0     0     0       Aluminum     ppm     ASTM D5185m     >20     3     4     7       Lead     ppm     ASTM D5185m     >30     1     1     2       Adaminum     ppm     ASTM D5185m     15     0     0     1       Vanadium     ppm     ASTM D5185m     100     71     66     74       Manganese     ppm     ASTM D5185m     100     71     66     74       Manganese     ppm     ASTM D5185m     100     71     66     7	Fuel		WC Method	>5	<1.0	<1.0	<1.0
WEAR METALS     method     limit/base     current     history1     history2       Iron     ppm     ASTM D5185m     >100     12     9     7       Chromium     ppm     ASTM D5185m     >20     0     <1     <1       Nickel     ppm     ASTM D5185m     >4     0     0     <1       Silver     ppm     ASTM D5185m     >3     0     0     <1       Lead     ppm     ASTM D5185m     >20     3     4     7       Copper     ppm     ASTM D5185m     >20     3     4     7       Lead     ppm     ASTM D5185m     >20     3     4     7       Lead     ppm     ASTM D5185m     >20     0     <1     2       Cadmium     ppm     ASTM D5185m     0     0     <1     <1       Cadmium     ppm     ASTM D5185m     100     0     0     <1       Boron     ppm     ASTM D5185m     100     0     <1     1	Water		WC Method	>0.2	NEG	NEG	NEG
Iron     ppm     ASTM D5185m     >100     12     9     7       Chromium     ppm     ASTM D5185m     >20     0     <1     <1       Nickel     ppm     ASTM D5185m     >4     0     0     0       Titanium     ppm     ASTM D5185m     >3     0     0     0       Aluminum     ppm     ASTM D5185m     >20     3     4     7       Lead     ppm     ASTM D5185m     >20     3     4     7       Lead     ppm     ASTM D5185m     >30     1     1     2     1       Copper     ppm     ASTM D5185m     >30     1     1     2     1       Cadmium     ppm     ASTM D5185m     >15     0     0     1     2       Boron     ppm     ASTM D5185m     100     71     66     74       Magnesium     ppm     ASTM D5185m     100     71     66     74       Magnesium     ppm     ASTM D5185m     <	Glycol		WC Method		NEG	NEG	NEG
Chromium     ppm     ASTM D5185m     >20     0     <1	WEAR METALS		method	limit/base	current	history1	history2
Chromium     ppm     ASTM D5185m     >20     0     <1	Iron	ppm	ASTM D5185m	>100	12	9	7
Titanium     ppm     ASTM D5185m     1     0     <1	Chromium	ppm	ASTM D5185m	>20	0	<1	<1
Silver     ppm     ASTM D5185m     >3     0     0     0       Aluminum     ppm     ASTM D5185m     >20     3     4     7       Lead     ppm     ASTM D5185m     >20     3     4     7       Lead     ppm     ASTM D5185m     >40     0     0     <11	Nickel	ppm	ASTM D5185m	>4	0	0	0
Aluminum     ppm     ASTM D5185m     >20     3     4     7       Lead     ppm     ASTM D5185m     >40     0     0     <1       Copper     ppm     ASTM D5185m     >330     1     1     2       Tin     ppm     ASTM D5185m     >15     0     0     <1       Cadmium     ppm     ASTM D5185m     0     <1     <1     2       Cadmium     ppm     ASTM D5185m     0     0     0     0       ADDITIVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185m     100     71     66     74       Manganese     ppm     ASTM D5185m     100     71     66     74       Manganese     ppm     ASTM D5185m     100     1433     321     1433       Phosphorus     ppm     ASTM D5185m     3000     1851     1746     1433       Sulfur     ppm     ASTM D5185m     155     9	Titanium	ppm	ASTM D5185m		1	0	<1
Lead     ppm     ASTM D5185m     >40     0     0     <1	Silver	ppm	ASTM D5185m	>3	0	0	0
Copper     ppm     ASTM D5185m     >330     1     1     2       Tin     ppm     ASTM D5185m     >15     0     0     <1       Vanadium     ppm     ASTM D5185m     0     0     <1     <1       Cadmium     ppm     ASTM D5185m     0     0     0     0       ADDITIVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185m     250     90     37     187       Barium     ppm     ASTM D5185m     100     0     0     0       Molybdenum     ppm     ASTM D5185m     100     71     66     74       Marganese     ppm     ASTM D5185m     100     71     66     74       Marganesium     ppm     ASTM D5185m     100     1433     321     1433       Phosphorus     ppm     ASTM D5185m     150     1644     1288     1152       Sulfur     ppm     ASTM D5185m     >25     9	Aluminum	ppm	ASTM D5185m	>20	3	4	7
Tin     ppm     ASTM D5185m     >15     0     0     <1	Lead	ppm	ASTM D5185m	>40	0	0	<1
Vanadium     ppm     ASTM D5185m     0     <1	Copper	ppm	ASTM D5185m	>330	1	1	2
Cadmium     ppm     ASTM D5185m     0     0     0       ADDITIVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185m     250     90     37     187       Barium     ppm     ASTM D5185m     10     0     0     0     0       Manganese     ppm     ASTM D5185m     100     71     66     74       Manganese     ppm     ASTM D5185m     100     71     66     74       Manganese     ppm     ASTM D5185m     100     71     66     74       Magnesium     ppm     ASTM D5185m     100     115     1746     1433       Calcium     ppm     ASTM D5185m     3000     1851     1746     1433       Phosphorus     ppm     ASTM D5185m     1350     1264     1288     1152       Sulfur     ppm     ASTM D5185m     255     9     9     9       Sodium     ppm     ASTM D5185m     20	Tin	ppm	ASTM D5185m	>15	0	0	<1
ADDITIVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185m     250     90     37     187       Barium     ppm     ASTM D5185m     10     0     0     0       Molybdenum     ppm     ASTM D5185m     100     71     66     74       Manganese     ppm     ASTM D5185m     100     71     66     74       Magnesium     ppm     ASTM D5185m     100     71     66     74       Magnesium     ppm     ASTM D5185m     100     1851     1746     1433       Phosphorus     ppm     ASTM D5185m     3000     1851     1746     1433       Phosphorus     ppm     ASTM D5185m     1350     1264     1288     1152       Sulfur     ppm     ASTM D5185m     >25     9     9     9       Sodium     ppm     ASTM D5185m     >25     9     9     9       Sodium     ppm     ASTM D5185m     >20	Vanadium	ppm	ASTM D5185m		0	<1	<1
Boron     ppm     ASTM D5185m     250     90     37     187       Barium     ppm     ASTM D5185m     10     0     0     0       Molybdenum     ppm     ASTM D5185m     100     71     66     74       Manganese     ppm     ASTM D5185m     100     71     66     74       Magnesium     ppm     ASTM D5185m     100     71     66     74       Magnesium     ppm     ASTM D5185m     100     71     66     74       Magnesium     ppm     ASTM D5185m     100     1851     1746     1433       Phosphorus     ppm     ASTM D5185m     3000     1851     1746     1433       Sulfur     ppm     ASTM D5185m     1350     1264     1288     1152       Sulfur     ppm     ASTM D5185m     >25     9     9     9       Sodium     ppm     ASTM D5185m     >158     6     4     4       Potassium     ppm     ASTM D5185m     >	Cadmium	ppm	ASTM D5185m		0	0	0
Barium     ppm     ASTM D5185m     10     0     0     0       Molybdenum     ppm     ASTM D5185m     100     71     66     74       Manganese     ppm     ASTM D5185m     100     71     66     74       Magnesium     ppm     ASTM D5185m     450     384     380     321       Calcium     ppm     ASTM D5185m     450     384     380     321       Calcium     ppm     ASTM D5185m     3000     1851     1746     1433       Phosphorus     ppm     ASTM D5185m     1350     1264     1288     1152       Sulfur     ppm     ASTM D5185m     4250     3863     3378     3070       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     9     9     9       Sodium     ppm     ASTM D5185m     >20     <1     0     <1       INFRA-RED     method     limit/base							
Molybdenum     ppm     ASTM D5185m     100     71     66     74       Manganese     ppm     ASTM D5185m     0     0     <1	ADDITIVES		method	limit/base	current	history1	history2
Manganese     ppm     ASTM D5185m     0     0     <1	ADDITIVES Boron	ppm					
Magnesium     ppm     ASTM D5185m     450     384     380     321       Calcium     ppm     ASTM D5185m     3000     1851     1746     1433       Phosphorus     ppm     ASTM D5185m     1150     1049     1050     947       Zinc     ppm     ASTM D5185m     1350     1264     1288     1152       Sulfur     ppm     ASTM D5185m     4250     3863     3378     3070       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     9     9     9       Sodium     ppm     ASTM D5185m     >158     6     4     4       Potassium     ppm     ASTM D5185m     >20     <1     0     <1       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     >3     0.6     0.6     0.4       Nitration     Abs/.mm     *ASTM D7624			ASTM D5185m	250	90	37	187
Calcium     ppm     ASTM D5185m     3000     1851     1746     1433       Phosphorus     ppm     ASTM D5185m     1150     1049     1050     947       Zinc     ppm     ASTM D5185m     1350     1264     1288     1152       Sulfur     ppm     ASTM D5185m     4250     3863     3378     3070       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     9     9     9       Sodium     ppm     ASTM D5185m     >25     9     9     9       Sodium     ppm     ASTM D5185m     >25     9     9     9       Sodium     ppm     ASTM D5185m     >20     <1     0     <1       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     >3     0.6     0.6     0.4       Nitration     Abs/.tmm     *ASTM D7415     >	Boron	ppm	ASTM D5185m ASTM D5185m	250 10	90 0	37 0	187 0
Phosphorus     ppm     ASTM D5185m     1150     1049     1050     947       Zinc     ppm     ASTM D5185m     1350     1264     1288     1152       Sulfur     ppm     ASTM D5185m     1350     1264     1288     1152       Sulfur     ppm     ASTM D5185m     4250     3863     3378     3070       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     9     9     9       Sodium     ppm     ASTM D5185m     >158     6     4     4       Potassium     ppm     ASTM D5185m     >20     <1	Boron Barium	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	250 10	90 0 71	37 0 66	187 0 74
Zinc     ppm     ASTM D5185m     1350     1264     1288     1152       Sulfur     ppm     ASTM D5185m     4250     3863     3378     3070       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     9     9     9       Sodium     ppm     ASTM D5185m     >158     6     4     4       Potassium     ppm     ASTM D5185m     >20     <1     0     <1       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     >3     0.6     0.6     0.4       Nitration     Abs/cm     *ASTM D7624     >20     9.4     9.4     8.4       Sulfation     Abs/.tmm     *ASTM D7415     >30     21.2     20.7     20.7       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.tmm     *ASTM D74	Boron Barium Molybdenum	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100	90 0 71 0	37 0 66 0	187 0 74 <1
Sulfur     ppm     ASTM D5185m     4250     3863     3378     3070       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     9     9     9       Sodium     ppm     ASTM D5185m     >25     9     9     9       Sodium     ppm     ASTM D5185m     >158     6     4     4       Potassium     ppm     ASTM D5185m     >20     <1	Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450	90 0 71 0 384	37 0 66 0 380	187 0 74 <1 321
CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>25999SodiumppmASTM D5185m>158644PotassiumppmASTM D5185m>20<10<1INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7844>30.60.60.4NitrationAbs/cm*ASTM D7624>209.49.48.4SulfationAbs/.imm*ASTM D7415>3021.220.720.7FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/.imm*ASTM D7414>2518.418.016.7	Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150	90 0 71 0 384 1851	37 0 66 0 380 1746 1050	187 0 74 <1 321 1433 947
Silicon     ppm     ASTM D5185m     >25     9     9     9       Sodium     ppm     ASTM D5185m     >158     6     4     4       Potassium     ppm     ASTM D5185m     >20     <1     0     <1       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     >3     0.6     0.6     0.4       Nitration     Abs/cm     *ASTM D7624     >20     9.4     9.4     8.4       Sulfation     Abs/.imm     *ASTM D7415     >30     21.2     20.7     20.7       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.imm     *ASTM D7414     >25     18.4     18.0     16.7	Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150	90 0 71 0 384 1851 1049	37 0 66 0 380 1746 1050	187 0 74 <1 321 1433 947
Sodium     ppm     ASTM D5185m     >158     6     4     4       Potassium     ppm     ASTM D5185m     >20     <1     0     <1       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     >3     0.6     0.6     0.4       Nitration     Abs/cm     *ASTM D7624     >20     9.4     9.4     8.4       Sulfation     Abs/.1mm     *ASTM D7415     >30     21.2     20.7     20.7       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     18.4     18.0     16.7	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350	90 0 71 0 384 1851 1049 1264	37 0 66 0 380 1746 1050 1288	187 0 74 <1 321 1433 947 1152
Potassium     ppm     ASTM D5185m     >20     <1	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	250 10 100 450 3000 1150 1350 4250	90 0 71 0 384 1851 1049 1264 3863	37 0 66 0 380 1746 1050 1288 3378	187 0 74 <1 321 1433 947 1152 3070
INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     >3     0.6     0.6     0.4       Nitration     Abs/cm     *ASTM D7624     >20     9.4     9.4     8.4       Sulfation     Abs/.tmm     *ASTM D7415     >30     21.2     20.7     20.7       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.tmm     *ASTM D7414     >25     18.4     18.0     16.7	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 ASTM D5185m	250 10 100 450 3000 1150 1350 4250	90 0 71 0 384 1851 1049 1264 3863 current	37 0 66 0 380 1746 1050 1288 3378 history1	187 0 74 <1 321 1433 947 1152 3070 history2
Soot %     %     *ASTM D7844     >3     0.6     0.6     0.4       Nitration     Abs/cm     *ASTM D7624     >20     9.4     9.4     8.4       Sulfation     Abs/.1mm     *ASTM D7415     >30     21.2     20.7     20.7       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     18.4     18.0     16.7	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	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> ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25	90 0 71 0 384 1851 1049 1264 3863 current 9	37 0 66 0 380 1746 1050 1288 3378 history1 9	187 0 74 <1 321 1433 947 1152 3070 history2 9
Nitration     Abs/cm     *ASTM D7624     >20     9.4     9.4     8.4       Sulfation     Abs/.1mm     *ASTM D7615     >30     21.2     20.7     20.7       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     18.4     18.0     16.7	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS 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> ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >158	90 0 71 0 384 1851 1049 1264 3863 <u>current</u> 9 6	37 0 66 0 380 1746 1050 1288 3378 history1 9 4	187 0 74 <1 321 1433 947 1152 3070 history2 9 4
Sulfation     Abs/.1mm     *ASTM D7415     >30     21.2     20.7     20.7       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     18.4     18.0     16.7	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >158 >20	90 0 71 0 384 1851 1049 1264 3863 current 9 6 6 <1	37 0 66 0 380 1746 1050 1288 3378 history1 9 4 0	187 0 74 <1 321 1433 947 1152 3070 history2 9 4 <1
FLUID DEGRADATION method limit/base current history1 history2   Oxidation Abs/.1mm *ASTM D7414 >25 18.4 18.0 16.7	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>Imit/base</b> >25 >158 >20 <b>Imit/base</b>	90 0 71 0 384 1851 1049 1264 3863 current 9 6 <1 current	37 0 66 0 380 1746 1050 1288 3378 history1 9 4 0 0 history1	187 0 74 <1 321 1433 947 1152 3070 history2 9 4 <1 ×1 history2
Oxidation Abs/.1mm *ASTM D7414 >25 18.4 18.0 16.7	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>Imit/base</b> >25 >158 >20 <b>Imit/base</b> >3	90 0 71 0 384 1851 1049 1264 3863 <i>current</i> 9 6 <1 <i>current</i> 0.6	37 0 66 0 380 1746 1050 1288 3378 history1 9 4 0 0 history1 0.6	187 0 74 <1 321 1433 947 1152 3070 history2 9 4 <1 kistory2 0.4
	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>Iimit/base</b> >25 >158 >20 <b>Iimit/base</b> >3 >20	90 0 71 0 384 1851 1049 1264 3863 <i>current</i> 9 6 <1 <i>current</i> 0.6 9.4	37 0 66 0 380 1746 1050 1288 3378 history1 9 4 0 history1 0.6 9.4	187 0 74 <1 321 1433 947 1152 3070 history2 9 4 <1 kistory2 0.4 8.4
Base Number (BN)     mg KOH/g     ASTM D2896     8.5     6.5     7.2     5.8	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>imit/base</b> >25 >158 >20 <b>imit/base</b> >3 >20 >3	90 0 71 0 384 1851 1049 1264 3863 <i>current</i> 9 6 <1 <i>current</i> 0.6 9.4 21.2	37 0 66 0 380 1746 1050 1288 3378 history1 9 4 0 0 history1 0.6 9.4 20.7	187 0 74 <1 321 1433 947 1152 3070 history2 9 4 <1 history2 0.4 8.4 20.7
	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624	250 10 100 450 3000 1150 1350 4250 <b>Iimit/base</b> >25 >158 >20 <b>Iimit/base</b> >3 >20 >30	90 0 71 0 384 1851 1049 1264 3863 <i>current</i> 9 6 <1 <i>current</i> 0.6 9.4 21.2 <i>current</i>	37 0 66 0 380 1746 1050 1288 3378 history1 9 4 0 0 history1 0.6 9.4 20.7 history1	187 0 74 <1 321 1433 947 1152 3070 history2 9 4 <1 history2 0.4 8.4 20.7 history2

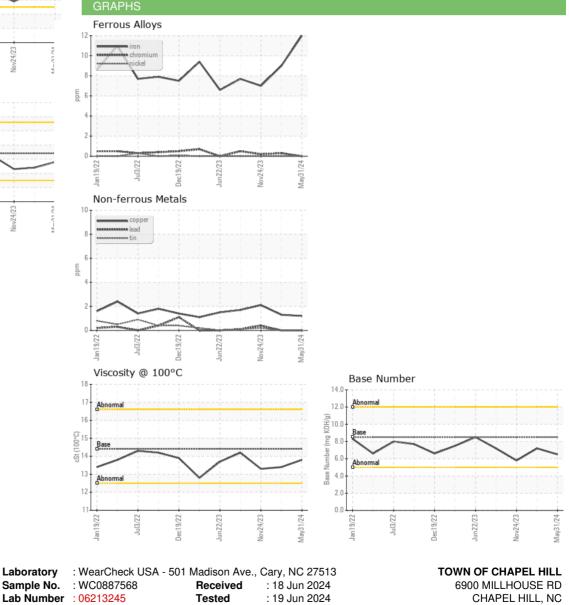


# **OIL ANALYSIS REPORT**





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 PROPERT	IES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.4	13.8	13.4	13.3



: 19 Jun 2024 - Sean Felton



Test Package : FLEET Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. \* - Denotes test methods that are outside of the ISO 17025 scope of accreditation. Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Diagnosed

Contact/Location: Lisa DePasqua - TOWCHANC

F:

US 27516

Contact: Lisa DePasqua

T: (919)696-4941

ldepasqua@townofchapelhill.org

Report Id: TOWCHANC [WUSCAR] 06213245 (Generated: 06/22/2024 23:03:21) Rev: 1

Laboratory

Sample No.

Unique Number : 11086109