

## **OIL ANALYSIS REPORT**

## Area [722504] LCT-2 Component

#### **Diesel Engine**

PHILLIPS 66 Fleet Supreme EC 15W40 (--- GAL)

#### 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.



### 2015 Nov2016 Jun2018 Dec2019 Jun2020 Nov2020 Dec2021 Jun2023 Mad

Sample Rating Trend

Sample Number     Client Info     WC0803178     WC0803478     WC080737       Sample Date     Client Info     06 Jul 2023     04 May 2023     20 Mar 2023       Machine Age     hrs     Client Info     2307     2877     2856       Oil Age     hrs     Client Info     23     0     0       Oil Age     Client Info     Not Changd     N/A     Not Changd       Sample Status     Imtehod     Imtubase     current     History1     History2       Fuel     WC Method     >5     <1.0     <1.0     <1.0     <1.0       Glycol     WC Method     >5     <1.0     <1.0     <1.0     <1.0       Glycol     WC Method     >5     <1.0     <1.0     <1.0     <1.0       Tran     ppm     ASTM 051858     >100     2     0     <1.1     <1.0     <1.1     <1.0     <1.1     <1.0     <1.0     <1.1     <1.0     <1.1     <1.0     <1.0     <1.1     <1.0     <1.0     <1.1     <1.0     <1.0	SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Date     Info     06 Jul 2023     04 May 2023     20 Mar 2023       Machine Age     hrs     Client Info     2907     2877     2856       Oil Age     hrs     Client Info     23     0     0       Oil Changed     Client Info     Not Changd     N/A     Not Changd       Sample Status     Client Info     Not Changd     N/A     Nort Changd       Glycol     WC Method     55     <1.0     <1.0     <1.0       Glycol     WC Method     55     <1.0     <1.0     <1.0       Chromium     ppm     ASTM 05185m     >20     0     0     0       VEAR METALS     method     imit/base     current     history1     history2       Iron     ppm     ASTM 05185m     >20     0     0     0       Nickel     ppm     ASTM 05185m     >20     2     5     3       Ivandum     ppm     ASTM 05185m     >30     0     0     0       Silver     ppm     ASTM 05185m	Sample Number		Client Info		WC0803178	WC0808468	WC0687737
Machine Age Oil Age Oil Age IrsClient Info290728772856Oil Changed Sample StatusClient InfoNot Changd NORMALN/ANot Changd NORMALCONTAMINATIONmethodImit/basecurrenthistory1history2Fuel GlycolWC Method>5<1.0<1.0<1.0GlycolWC MethodS5<1.0<1.0<1.0MEAR METALSmethodimit/basecurrenthistory1history2IronppmASTM D5185m>100202ChromiumppmASTM D5185m>20000NickelppmASTM D5185m>30000TataniumppmASTM D5185m>33000AuminumppmASTM D5185m>330<112CopperppmASTM D5185m>15000ADDITIVESmethodimit/basecurrenthistory1history2BoronppmASTM D5185m0000ADDITIVESmethodimit/basecurrenthistory1history2BronppmASTM D5185m9085818290BariumppmASTM D5185m908580011MaganeseppmASTM D5185m391238686CalciumppmASTM D5185m1116109711831092St			Client Info		06 Jul 2023	04 May 2023	20 Mar 2023
Oil Age     hrs     Client Info     23     0     0       Oil Changed     Client Info     Not Changd     NoRMAL     NoRMAL     NoRMAL       CONTAMINATION     method     limit/base     current     Fistory1     Fistory1       Fuel     WC Method     >5     <1.0     <1.0     <1.0       Glycol     WC Method     >5     <1.0     <1.0     <1.0       Glycol     WC Method     >5     <1.0     <1.0     <1.0       Glycol     WC Method     >5     <1.0     <1.0     <1.0       Fuel     WC Method     >50     0     0     0     0       Iron     ppm     ASTM D5185m     >20     0     0     0     0       Itanium     ppm     ASTM D5185m     >30     0     0     0     1     2       Stiver     ppm     ASTM D5185m     >30     1     0     1     2       Copper     ppm     ASTM D5185m     >30     1     0     1	•	hrs	Client Info		2907		2856
Oil Changed Sample Status Client Info Not Changd NORMAL N/A Not Changd NORMAL   CONTAMINATION method imit/base current history1 history2   Fuel WC Method >5 <1.0 <1.0 <1.0   Glycol WC Method >5 <1.0 <1.0 <1.0   WEAR METALS method imit/base current history1 history2   Iron ppm ASTM D5185m >20 0 0 0   Nickel ppm ASTM D5185m >20 0 0 0   Nickel ppm ASTM D5185m >20 0 0 0   Aluminum ppm ASTM D5185m >20 2 5 3   Lead ppm ASTM D5185m >30 <1 0 <1   Tin ppm ASTM D5185m >30 <1 0 0   Vanadium ppm ASTM D5185m >30 <1 0 0   Kornentum ppm ASTM D5185m <1 0 0 0   Copper ppm ASTM D5185m <1 0 <1 1   Kornenum ppm ASTM D5185m	-	hrs	Client Info		23	0	0
Sample Status     Imathe initiality association of the story	-		Client Info		Not Changd		Not Changd
Fuel     WC Method     >5     <1.0	-				Ű	NORMAL	-
Glycol     WC Method     NEG     NEG     NEG       WEAR METALS     method     limit/base     current     history1     history2       Iron     ppm     ASTM D5185m     >20     0     0     0       Nickel     ppm     ASTM D5185m     >20     0     0     0       Nickel     ppm     ASTM D5185m     >3     0     0     0       Aluminum     ppm     ASTM D5185m     >20     2     5     3       Lead     ppm     ASTM D5185m     >20     2     5     3       Lead     ppm     ASTM D5185m     >40     <1     0     <1       Yanadium     ppm     ASTM D5185m     10     0     <1     0       Cadmium     ppm     ASTM D5185m     0     0     0     0       Addium     ppm     ASTM D5185m     11     0     <1     0       Cadmium     ppm     ASTM D5185m     90     85     80       Barium <t< th=""><th>CONTAMINATION</th><th>1</th><th>method</th><th>limit/base</th><th>current</th><th>history1</th><th>history2</th></t<>	CONTAMINATION	1	method	limit/base	current	history1	history2
WEAR METALS     method     limit/base     current     history1     history2       Iron     ppm     ASTM D5185m     >100     2     0     2       Chromium     ppm     ASTM D5185m     >20     0     0     0       Nickel     ppm     ASTM D5185m     >4     0     0     0       Titanium     ppm     ASTM D5185m     >3     0     0     0       Aluminum     ppm     ASTM D5185m     >3     0     0     0       Lead     ppm     ASTM D5185m     >20     2     5     3       Lead     ppm     ASTM D5185m     >20     0     <1     1     2       Copper     ppm     ASTM D5185m     >330     <1     0     <1     0     <1       Vanadium     ppm     ASTM D5185m     0     0     0     0     0     0       Cadmium     ppm     ASTM D5185m     110     0     <1     0     1     0     1 <t< 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></t<>	Fuel		WC Method	>5	<1.0	<1.0	<1.0
Iron     ppm     ASTM D5185m     >100     2     0     2       Chromium     ppm     ASTM D5185m     >20     0     0     0       Nickel     ppm     ASTM D5185m     >4     0     0     0       Silver     ppm     ASTM D5185m     >3     0     0     0       Aluminum     ppm     ASTM D5185m     >3     0     0     0       Auminum     ppm     ASTM D5185m     >3     0     0     0       Lead     ppm     ASTM D5185m     >3     0     0     <11	Glycol		WC Method		NEG	NEG	NEG
Chromium     ppm     ASTM D5185m     >20     0     0     0       Nickel     ppm     ASTM D5185m     >4     0     0     0       Titanium     ppm     ASTM D5185m     >3     0     0     0       Silver     ppm     ASTM D5185m     >3     0     0     0       Aluminum     ppm     ASTM D5185m     >40     <1     1     2       Copper     ppm     ASTM D5185m     >40     <1     0     <1       Tin     ppm     ASTM D5185m     >40     <1     0     <1       Vanadium     ppm     ASTM D5185m     >30     <1     0     0       Cadmium     ppm     ASTM D5185m     0     0     0     0       ADDITVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185m     81     82     90       Barium     ppm     ASTM D5185m     90     85     80       <	WEAR METALS		method	limit/base	current	history1	history2
Nickel     ppm     ASTM D5185m     >4     0     0     0       Titanium     ppm     ASTM D5185m     >3     0     0     0       Silver     ppm     ASTM D5185m     >3     0     0     0       Aluminum     ppm     ASTM D5185m     >20     2     5     3       Lead     ppm     ASTM D5185m     >20     2     5     3       Copper     ppm     ASTM D5185m     >40     <1	Iron	ppm	ASTM D5185m	>100	2	0	2
Titanium     ppm     ASTM D5185m     <1     0     <1       Silver     ppm     ASTM D5185m     >3     0     0     0       Aluminum     ppm     ASTM D5185m     >20     2     5     3       Lead     ppm     ASTM D5185m     >40     <1	Chromium	ppm	ASTM D5185m	>20	0	0	0
Silver     ppm     ASTM D5185m     >3     0     0     0       Aluminum     ppm     ASTM D5185m     >20     2     5     3       Lead     ppm     ASTM D5185m     >330     <1     1     2       Copper     ppm     ASTM D5185m     >330     <1     0     <1       Tin     ppm     ASTM D5185m     >15     0     0     <1       Vanadium     ppm     ASTM D5185m     >15     0     0     0       Cadmium     ppm     ASTM D5185m     0     0     0     0       ADDITIVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185m     0     0     0     0     0       Magnesium     ppm     ASTM D5185m     90     85     80       Magnesium     ppm     ASTM D5185m     2312     2239     2176       Phosphorus     ppm     ASTM D5185m     116     1097     1183	Nickel	ppm	ASTM D5185m	>4	0	0	0
Aluminum     ppm     ASTM D5185m     >20     2     5     3       Lead     ppm     ASTM D5185m     >40     <1	Titanium	ppm	ASTM D5185m		<1	0	<1
Lead     ppm     ASTM D5185m     >40     <1     1     2       Copper     ppm     ASTM D5185m     >330     <1	Silver	ppm	ASTM D5185m	>3	0	0	0
Copper     ppm     ASTM D5185m     >330     <1     0     <1       Tin     ppm     ASTM D5185m     >15     0     0     <1	Aluminum		ASTM D5185m	>20	2	5	3
Tin     ppm     ASTM D5185m     >15     0     0     <1       Vanadium     ppm     ASTM D5185m     <1	Lead	ppm	ASTM D5185m	>40	<1	1	2
Vanadium     ppm     ASTM D5185m     <1     0     0       Cadmium     ppm     ASTM D5185m     0     0     0     0       ADDITIVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185m     81     82     90       Barium     ppm     ASTM D5185m     0     0     0     0       Molybdenum     ppm     ASTM D5185m     90     85     80       Magnese     ppm     ASTM D5185m     90     85     80       Magnesium     ppm     ASTM D5185m     39     123     86       Calcium     ppm     ASTM D5185m     1116     1097     1183     1092       Zinc     ppm     ASTM D5185m     1250     1291     1400     1235       Sulfur     ppm     ASTM D5185m     225     4     3     4       Sodium     ppm     ASTM D5185m     >22     4     3     4       Sodium     ppm	Copper	ppm	ASTM D5185m	>330	<1	0	<1
Cadmium     ppm     ASTM D5185m     0     0     0       ADDITIVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185m     81     82     90       Barium     ppm     ASTM D5185m     0     0     0       Molybdenum     ppm     ASTM D5185m     90     85     80       Magnesium     ppm     ASTM D5185m     90     85     80       Magnesium     ppm     ASTM D5185m     90     85     80       Calcium     ppm     ASTM D5185m     39     123     86       Calcium     ppm     ASTM D5185m     2312     2239     2176       Phosphorus     ppm     ASTM D5185m     1250     1291     1400     1235       Sulfur     ppm     ASTM D5185m     1250     1291     1400     1235       Sulfur     ppm     ASTM D5185m     >25     4     3     4       Sodium     ppm     ASTM D5185m	Tin	ppm	ASTM D5185m	>15	0	0	<1
ADDITIVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185m     81     82     90       Barium     ppm     ASTM D5185m     0     0     0       Malybdenum     ppm     ASTM D5185m     90     85     80       Magnesium     ppm     ASTM D5185m     90      <1	Vanadium	ppm	ASTM D5185m		<1	0	0
Boron     ppm     ASTM D5185m     81     82     90       Barium     ppm     ASTM D5185m     0     0     0     0       Molybdenum     ppm     ASTM D5185m     90     85     80       Manganese     ppm     ASTM D5185m     90     85     80       Magnesium     ppm     ASTM D5185m     90     85     80       Calcium     ppm     ASTM D5185m     91     0     <1	Cadmium	ppm	ASTM D5185m		0	0	0
Barium     ppm     ASTM D5185m     0     0     0       Molybdenum     ppm     ASTM D5185m     90     85     80       Manganese     ppm     ASTM D5185m     90     85     80       Magnesium     ppm     ASTM D5185m     39     123     86       Calcium     ppm     ASTM D5185m     2312     2239     2176       Phosphorus     ppm     ASTM D5185m     1116     1097     1183     1092       Zinc     ppm     ASTM D5185m     1250     1291     1400     1235       Sulfur     ppm     ASTM D5185m     1250     1291     1400     1235       Sulfur     ppm     ASTM D5185m     1250     1291     1400     1235       Sulfur     ppm     ASTM D5185m     255     4     3     4       Sodium     ppm     ASTM D5185m     >20     <1     1     2       INFRA-RED     method     limit/base     current     history1     history2 <td< th=""><th>ADDITIVES</th><th></th><th>mothod</th><th>limit/base</th><th>ourropt</th><th>history1</th><th>history2</th></td<>	ADDITIVES		mothod	limit/base	ourropt	history1	history2
Molybdenum     ppm     ASTM D5185m     90     85     80       Manganese     ppm     ASTM D5185m     <1     0     <1       Magnesium     ppm     ASTM D5185m     39     123     86       Calcium     ppm     ASTM D5185m     2312     2239     2176       Phosphorus     ppm     ASTM D5185m     1116     1097     1183     1092       Zinc     ppm     ASTM D5185m     1250     1291     1400     1235       Sulfur     ppm     ASTM D5185m     1250     1291     1400     1235       Sulfur     ppm     ASTM D5185m     1250     1291     1400     1235       Sulfur     ppm     ASTM D5185m     25     4     3     4       Sodium     ppm     ASTM D5185m     >20     <1     1     2       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     >3     0.1     0.1     0.1 <th>//BBHHYE0</th> <th></th> <th>methou</th> <th>iiiiii/base</th> <th>current</th> <th>Thistory I</th> <th>TIStoryz</th>	//BBHHYE0		methou	iiiiii/base	current	Thistory I	TIStoryz
Maganese     ppm     ASTM D5185m     <1		ppm		IIIII/Dase			
Magnesium     ppm     ASTM D5185m     39     123     86       Calcium     ppm     ASTM D5185m     2312     2239     2176       Phosphorus     ppm     ASTM D5185m     1116     1097     1183     1092       Zinc     ppm     ASTM D5185m     1250     1291     1400     1235       Sulfur     ppm     ASTM D5185m     25     4     3     3992       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >20     <1     2     1       Potassium     ppm     ASTM D5185m     >20     <1     0.1     0.1       Nitration     Abs/.m     *ASTM D7624     >3	Boron		ASTM D5185m	inni/base	81	82	90
Calcium     ppm     ASTM D5185m     2312     2239     2176       Phosphorus     ppm     ASTM D5185m     1116     1097     1183     1092       Zinc     ppm     ASTM D5185m     1250     1291     1400     1235       Sulfur     ppm     ASTM D5185m     1250     1478     4835     3992       CONTAMINANTS     method     limit/base     current     history1     history2       Solium     ppm     ASTM D5185m     >20     <1	Boron Barium	ppm	ASTM D5185m ASTM D5185m	IIIIIUJase	81 0	82 0	90 0
Phosphorus     ppm     ASTM D5185m     1116     1097     1183     1092       Zinc     ppm     ASTM D5185m     1250     1291     1400     1235       Sulfur     ppm     ASTM D5185m     1250     1291     1400     1235       Sulfur     ppm     ASTM D5185m     1250     1291     1400     1235       Sulfur     ppm     ASTM D5185m     1250     1291     1400     1235       Soliton     ppm     ASTM D5185m     20     4718     4835     3992       CONTAMINANTS     method     limit/base     current     history1     history2       Soliton     ppm     ASTM D5185m     >20     <1	Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m		81 0 90	82 0 85	90 0 80
Zinc     ppm     ASTM D5185m     1250     1291     1400     1235       Sulfur     ppm     ASTM D5185m     1250     4718     4835     3992       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     4     3     4       Sodium     ppm     ASTM D5185m     >25     4     3     4       Sodium     ppm     ASTM D5185m     >20     <1     2     <1       Potassium     ppm     ASTM D5185m     >20     <1     1     2       Soot %     %     *ASTM D7844     >3     0.1     0.1     0.1       Nitration     Abs/cm     *ASTM D7624     >20     7.3     7.4     7.2       Sulfation     Abs/.1mm     *ASTM D7415     >30     16.7     17.4     17.3       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414 </th <th>Boron Barium Molybdenum Manganese</th> <th>ppm ppm ppm</th> <th>ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m</th> <th></th> <th>81 0 90 &lt;1</th> <th>82 0 85 0</th> <th>90 0 80 &lt;1</th>	Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		81 0 90 <1	82 0 85 0	90 0 80 <1
Sulfur     ppm     ASTM D5185m     4718     4835     3992       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     4     3     4       Sodium     ppm     ASTM D5185m     >25     4     3     4       Sodium     ppm     ASTM D5185m     >20     <1     2     <1       Potassium     ppm     ASTM D5185m     >20     <1     1     2       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     >3     0.1     0.1     0.1       Nitration     Abs/cm     *ASTM D7624     >20     7.3     7.4     7.2       Sulfation     Abs/.1mm     *ASTM D7415     >30     16.7     17.4     17.3       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25	Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		81 0 90 <1 39	82 0 85 0 123	90 0 80 <1 86
CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m<>25434SodiumppmASTM D5185m>25434PotassiumppmASTM D5185m>20<112<1PotassiumppmASTM D5185m>20<112<1INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7844>30.10.10.1NitrationAbs/cm*ASTM D7624>207.37.47.2SulfationAbs/.1mm*ASTM D7415>3016.717.417.3FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/.1mm*ASTM D7414>2512.712.912.3	Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		81 0 90 <1 39 2312	82 0 85 0 123 2239	90 0 80 <1 86 2176
Silicon     ppm     ASTM D5185m     >25     4     3     4       Sodium     ppm     ASTM D5185m     >25     4     3     4       Sodium     ppm     ASTM D5185m     >20     1     2     <1	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	1116	81 0 90 <1 39 2312 1097	82 0 85 0 123 2239 1183	90 0 80 <1 86 2176 1092
Sodium     ppm     ASTM D5185m     1     2     <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	1116	81 0 90 <1 39 2312 1097 1291	82 0 85 0 123 2239 1183 1400	90 0 80 <1 86 2176 1092 1235
Potassium     ppm     ASTM D5185m     >20     <1	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1116 1250	81 0 90 <1 39 2312 1097 1291 4718	82 0 85 0 123 2239 1183 1400 4835	90 0 80 <1 86 2176 1092 1235 3992
INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     >3     0.1     0.1     0.1       Nitration     Abs/cm     *ASTM D7624     >20     7.3     7.4     7.2       Sulfation     Abs/.1mm     *ASTM D7415     >30     16.7     17.4     17.3       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     12.7     12.9     12.3	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1116 1250 limit/base	81 0 90 <1 39 2312 1097 1291 4718 current	82 0 85 0 123 2239 1183 1400 4835 history1	90 0 80 <1 86 2176 1092 1235 3992 history2
Soot %     %     *ASTM D7844     >3     0.1     0.1     0.1       Nitration     Abs/cm     *ASTM D7624     >20     7.3     7.4     7.2       Sulfation     Abs/.1mm     *ASTM D7415     >30     16.7     17.4     17.3       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     12.7     12.9     12.3	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>	1116 1250 limit/base	81 0 90 <1 39 2312 1097 1291 4718 current 4	82 0 85 0 123 2239 1183 1400 4835 history1 3	90 0 80 <1 86 2176 1092 1235 3992 history2 4
Nitration     Abs/cm     *ASTM D7624     >20     7.3     7.4     7.2       Sulfation     Abs/.1mm     *ASTM D7615     >30     16.7     17.4     17.3       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     12.7     12.9     12.3	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS 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	1116 1250 limit/base >25	81 0 90 <1 39 2312 1097 1291 4718 <u>current</u> 4 1	82 0 85 0 123 2239 1183 1400 4835 history1 3 2	90 0 80 <1 86 2176 1092 1235 3992 history2 4 <
Sulfation     Abs/.1mm     *ASTM D7415     >30     16.7     17.4     17.3       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     12.7     12.9     12.3	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	1116 1250 limit/base >25 >20	81 0 90 <1 39 2312 1097 1291 4718 current 4 1 1 <1	82 0 85 0 123 2239 1183 1400 4835 history1 3 2 1	90 0 80 <1 86 2176 1092 1235 3992 history2 4 <1 2
Sulfation     Abs/.1mm     *ASTM D7415     >30     16.7     17.4     17.3       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     12.7     12.9     12.3	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	1116 1250 limit/base >25 >20 limit/base	81 0 90 <1 39 2312 1097 1291 4718 current 4 1 <1 <1	82 0 85 0 123 2239 1183 1400 4835 history1 3 2 1 1 history1	90 0 80 <1 86 2176 1092 1235 3992 history2 4 <1 2
Oxidation     Abs/.1mm     *ASTM D7414     >25     12.7     12.9     12.3	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm	ASTM D5185m ASTM D5185m	1116 1250 limit/base >25 >20 limit/base >3	81 0 90 <1 39 2312 1097 1291 4718 <i>current</i> 4 1 <1 <1 <i>current</i> 0.1	82 0 85 0 123 2239 1183 1400 4835 history1 3 2 1 1 history1 0.1	90 0 80 <1 86 2176 1092 1235 3992 history2 4 <1 2 history2 0.1
	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	11116 1250 limit/base >25 >20 limit/base >3 >20	81 0 90 <1 39 2312 1097 1291 4718 current 4 1 <1 current 0.1 7.3	82 0 85 0 123 2239 1183 1400 4835 history1 3 2 1 3 2 1 history1 0.1 7.4	90 0 80 <1 86 2176 1092 1235 3992 history2 4 <1 2 history2 0.1 7.2
Base Number (BN)     mg KOH/g     ASTM D2896     9.7     11.21     7.3     10.02	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	1116 1250 1000 225 220 1000 220 1000 220 20 20 20 20 20 20 20 20 20 20 20	81 0 90 <1 39 2312 1097 1291 4718 <b>current</b> 4 1 <1 <1 <1 <b>current</b> 0.1 7.3 16.7	82 0 85 0 123 2239 1183 1400 4835 history1 3 2 1 1 history1 0.1 7.4 17.4	90 0 80 <1 86 2176 1092 1235 3992 history2 4 <1 2 history2 0.1 7.2 17.3
	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	11116 1250 1imit/base >25 >20 1imit/base >3 >20 >30 >30	81 0 90 <1 39 2312 1097 1291 4718 <i>current</i> 4 1 <1 <1 <i>current</i> 0.1 7.3 16.7	82 0 85 0 123 2239 1183 1400 4835 history1 3 2 1 3 2 1 history1 0.1 7.4 17.4 17.4 history1	90 0 80 <1 86 2176 1092 1235 3992 history2 4 <1 2 history2 0.1 7.2 17.3 history2

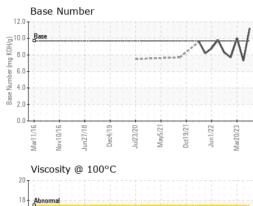


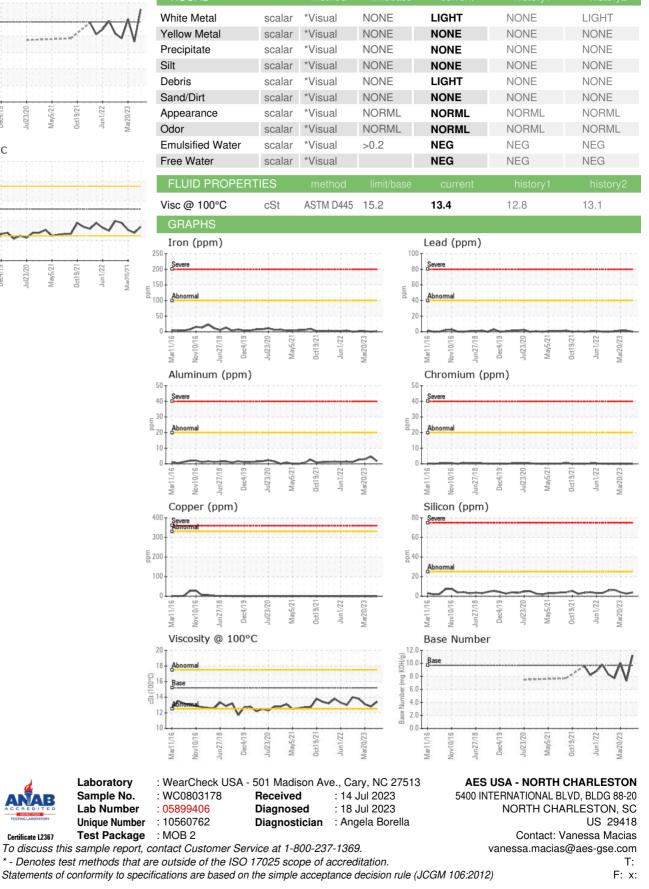
cSt (100°C)

13

Mar11

# **OIL ANALYSIS REPORT**





Certificate L2367

Contact/Location: Vanessa Macias - TLDNOR