

OIL ANALYSIS REPORT

Sample Number

Sample Date

OKLAHOMA/102 09.101 [OKLAHOMA^102]

Component **Diesel Engine**

MOBIL DELVAC 1300 SUPER15W40 (--- GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

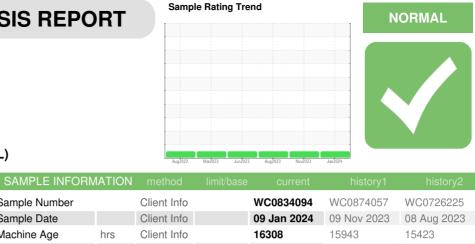
All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

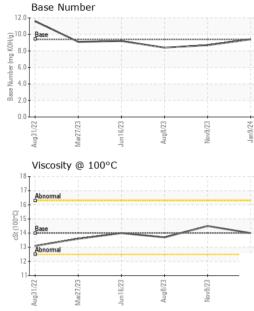
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.



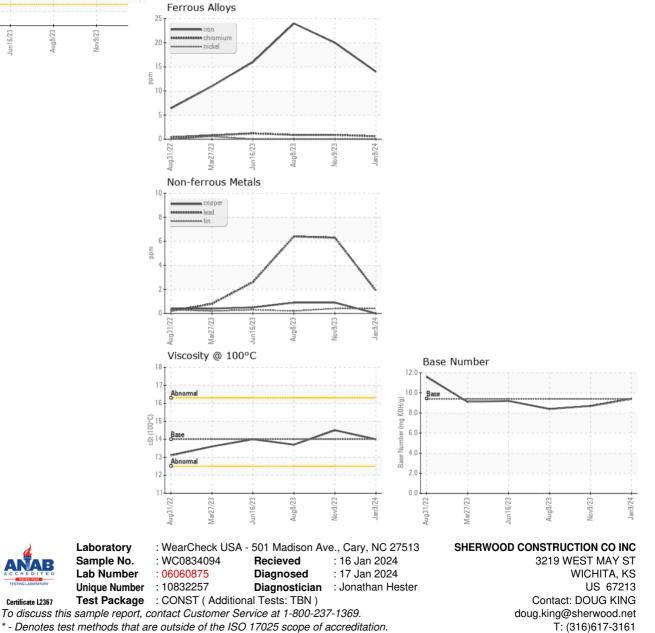
Oil Age Inrs Client Info 365 520 362 Oil Changed Client Info Changed Changed Changed Sample Status Imition Imitions Current Inistory1 NISTARL CONTAMINATION method Imitiobase current Inistory1 NISTARL Water WC Method >5 <1.0 <1.0 Kistory1 Water WC Method >0 NEG NEG NEG Water WC Method >0 14 20 24 Chromium ppm ASTM D5185m >20 <1 <1 <1 Nickel ppm ASTM D5185m >4 0 0 0 Silver ppm ASTM D5185m >3 0 <1 <1 1 Lead ppm ASTM D5185m >15 <1 <1 <1 <1 Vanadium ppm ASTM D5185m 0 48 42 45	Machine Age	hrs	Client Info		16308	15943	15423
Oil Changed Sample Status Client Info Changed NORMAL Changed NORMAL Changed NORMAL Changed NORMAL Changed NORMAL Changed NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history2 Fuel WC Method >5.5 <1.0 <1.0 <1.0 Water WC Method >0.2 NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >100 14 20 24 Chromium ppm ASTM D5185m >20 <1 <1 <1 Nickel ppm ASTM D5185m >30 0 <1 <1 Silver ppm ASTM D5185m >40 2 6 6 Copper ppm ASTM D5185m >30 0 <1 <1 Vanadium ppm ASTM D5185m >15 <1 <1 <1 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 48 42 45 Barium ppm ASTM D5185m	0						
Sample Status 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 WEAR METALS method imit/base current history1 history2 Iron ppm ASTM 05165m >20 <1 <1 <1 Chromium ppm ASTM 05165m >20 <1 <1 <1 Nickel ppm ASTM 05165m >30 0 0 0 Silver ppm ASTM 05165m >30 0 <1 <1 Lead ppm ASTM 05165m >30 0 <1 <1 <1 Vanadium ppm ASTM 05165m >30 0 0 0 0 Astm 05165m 0 0 0 0 0 22 <th>-</th> <th>1113</th> <th></th> <th></th> <th></th> <th></th> <th></th>	-	1113					
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 D5185n >20 <1 <1 <1 Nickel ppm ASTM D5185n >20 <1 <1 <1 Nickel ppm ASTM D5185n >3 0 0 0 Silver ppm ASTM D5185n >40 2 6 6 6 Copper ppm ASTM D5185n >330 0 <1 <1 <1 Yaandium ppm ASTM D5185n 0 0 0 0 Copper ppm ASTM D5185n 0 0 2 2<	-		Olient Into		-		
Fuel WC Method >5 <1.0	-				NORMAL		
Water WC Method >0.2 NEG NEG NEG NEG Glycol WC Method Imil/base current history1 history2 Iron ppm ASTM D5185m >100 14 20 24 Chromium ppm ASTM D5185m >20 <1 <1 <1 Nickel ppm ASTM D5185m >4 0 0 0 Silver ppm ASTM D5185m >30 0 <1 <1 Aluminum ppm ASTM D5185m >30 0 <1 <1 <1 Aluminum ppm ASTM D5185m >30 0 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 1 1 1	CONTAMINATIO	N	method	limit/base	current	history1	history2
Glycol WC Method NEG NEG NEG WEAR METALS method limi/base current history1 history2 Iron ppm ASTM D5185m >100 14 20 24 Chromium ppm ASTM D5185m >20 <1	Fuel					<1.0	<1.0
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >100 14 20 24 Chromium ppm ASTM D5185m >20 <1	Water		WC Method	>0.2	NEG	NEG	NEG
Iron ppm ASTM D5185m >100 14 20 24 Chromium ppm ASTM D5185m >20 <1	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >20 <1 <1 <1 <1 Nickel ppm ASTM D5185m >4 0 0 0 Silver ppm ASTM D5185m >3 0 0 <1	WEAR METALS		method	limit/base	current	history1	history2
Nickel ppm ASTM D5185m >4 0 0 0 Titanium ppm ASTM D5185m >3 0 0 <1	Iron	ppm	ASTM D5185m	>100	14	20	24
Titanium ppm ASTM D5185m 0 0 0 0 Silver ppm ASTM D5185m >3 0 0 <1	Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Silver ppm ASTM D5185m >3 0 0 <1 Aluminum ppm ASTM D5185m >20 9 13 31 Lead ppm ASTM D5185m >20 9 13 31 Lead ppm ASTM D5185m >40 2 6 6 Copper ppm ASTM D5185m >15 <1 <1 <1 Tin ppm ASTM D5185m >15 <1 <1 <1 <1 Vanadium ppm ASTM D5185m 0 0 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 48 42 45 Barium ppm ASTM D5185m 0 615 663 614 Calcium ppm ASTM D5185m 2012 2022 2221 Phosphorus ppm ASTM D5185m 2103	Nickel	ppm	ASTM D5185m	>4	0	0	0
Aluminum ppm ASTM D5185m >20 9 13 31 Lead ppm ASTM D5185m >40 2 6 6 Copper ppm ASTM D5185m >330 0 <1	Titanium	ppm	ASTM D5185m		0	0	0
Lead ppm ASTM D5185m >40 2 6 6 Copper ppm ASTM D5185m >330 0 <1	Silver	ppm	ASTM D5185m	>3	0	0	<1
Lead ppm ASTM D5185m >40 2 6 6 Copper ppm ASTM D5185m >330 0 <1	Aluminum	ppm	ASTM D5185m	>20	9	13	31
Copper ppm ASTM D5185m >330 0 <1 <1 Tin ppm ASTM D5185m >15 <1	Lead				2		6
Tin ppm ASTM D5185m >15 <1 <1 <1 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 48 42 45 Barium ppm ASTM D5185m 0 0 0 2 Molybdenum ppm ASTM D5185m 0 49 50 57 Magnese ppm ASTM D5185m <1	Copper	ppm	ASTM D5185m	>330	0	<1	<1
Vanadium ppm ASTM D5185m 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 48 42 45 Barium ppm ASTM D5185m 0 49 50 57 Magnese ppm ASTM D5185m 0 49 50 57 Magnesium ppm ASTM D5185m 0 615 663 614 614 Calcium ppm ASTM D5185m 0 615 663 614 614 62012 2022 2221 Phosphorus ppm ASTM D5185m 2012 2022 2221 2022 2221 Solfur ppm ASTM D5185m 920 977 969 3185 CONTAMINANTS method limit/base current history1 history2 <					<1		<1
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 48 42 45 Barium ppm ASTM D5185m 0 0 0 0 2 Molybdenum ppm ASTM D5185m 0 49 50 57 Manganese ppm ASTM D5185m 0 419 50 57 Manganesum ppm ASTM D5185m 0 615 663 614 Calcium ppm ASTM D5185m 0 6115 1214 1164 Sulfur ppm ASTM D5185m 920 977 969 Zinc ppm ASTM D5185m 2775 3001 3185 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 23 28 8	Vanadium		ASTM D5185m		0	0	0
Boron ppm ASTM D5185m 0 48 42 45 Barium ppm ASTM D5185m 0 0 0 2 Molybdenum ppm ASTM D5185m 0 49 50 57 Manganese ppm ASTM D5185m 0 49 50 57 Magnesium ppm ASTM D5185m 0 615 663 614 Calcium ppm ASTM D5185m 0 615 663 614 Calcium ppm ASTM D5185m 0 615 663 614 Calcium ppm ASTM D5185m 2012 2022 2221 Phosphorus ppm ASTM D5185m 920 977 969 Zinc ppm ASTM D5185m 920 977 969 Zinc ppm ASTM D5185m 27775 3001 3185 CONTAMINANTS method limit/base current history1 history2	Cadmium		ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 0 0 49 50 57 Manganese ppm ASTM D5185m 0 49 50 57 Manganese ppm ASTM D5185m 0 615 663 614 Calcium ppm ASTM D5185m 0 615 663 614 Calcium ppm ASTM D5185m 0 615 663 614 Calcium ppm ASTM D5185m 0 615 1105 1214 1164 Sulfur ppm ASTM D5185m 920 977 969 Zinc ppm ASTM D5185m 2775 3001 3185 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 23 28 87 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7824 >20	ADDITIVES		method	limit/base	current	history1	history2
Barium ppm ASTM D5185m 0 49 50 57 Molybdenum ppm ASTM D5185m 0 49 50 57 Manganese ppm ASTM D5185m -<1	Boron	ppm	ASTM D5185m	0	48	42	45
Manganese ppm ASTM D5185m <1 <1 <1 <1 Magnesium ppm ASTM D5185m 0 615 663 614 Calcium ppm ASTM D5185m 0 615 663 614 Calcium ppm ASTM D5185m 2012 2022 2221 Phosphorus ppm ASTM D5185m 920 977 969 Zinc ppm ASTM D5185m 920 977 969 Zinc ppm ASTM D5185m 2775 3001 3185 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 8 9 8 Sodium ppm ASTM D5185m >20 23 28 87 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.3 0.3 0.3	Barium		ASTM D5185m	0	0	0	2
Manganese ppm ASTM D5185m <1 <1 <1 <1 Magnesium ppm ASTM D5185m 0 615 663 614 Calcium ppm ASTM D5185m 2012 2022 2221 Phosphorus ppm ASTM D5185m 920 977 969 Zinc ppm ASTM D5185m 920 977 969 Zinc ppm ASTM D5185m 920 977 969 Zinc ppm ASTM D5185m 2775 3001 3185 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 8 9 8 Sodium ppm ASTM D5185m >20 23 28 87 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.3 0.3 0.3 Sulfation </td <td>Molybdenum</td> <td>ppm</td> <td>ASTM D5185m</td> <td>0</td> <th>49</th> <td>50</td> <td>57</td>	Molybdenum	ppm	ASTM D5185m	0	49	50	57
Magnesium ppm ASTM D5185m 0 615 663 614 Calcium ppm ASTM D5185m 2012 2022 2221 Phosphorus ppm ASTM D5185m 920 977 969 Zinc ppm ASTM D5185m 920 977 969 Zinc ppm ASTM D5185m 920 977 969 Sulfur ppm ASTM D5185m 920 977 969 Sulfur ppm ASTM D5185m 2775 3001 3185 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 8 9 8 Sodium ppm ASTM D5185m >20 23 28 87 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.3 0.3 0.3 Nitration Ab	-	ppm	ASTM D5185m		<1	<1	<1
Calcium ppm ASTM D5185m 2012 2022 2221 Phosphorus ppm ASTM D5185m 920 977 969 Zinc ppm ASTM D5185m 1105 1214 1164 Sulfur ppm ASTM D5185m 2775 3001 3185 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 8 9 8 Sodium ppm ASTM D5185m >25 8 9 8 Sodium ppm ASTM D5185m 20 23 28 87 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.3 0.3 0.3 Nitration Abs/.mm *ASTM D7624 >20 11.4 13.0 12.3 Sulfation Abs/.mm *ASTM D7415 >30 26.5 27.8 27.9	Magnesium			0		663	614
Phosphorus ppm ASTM D5185m 920 977 969 Zinc ppm ASTM D5185m 1105 1214 1164 Sulfur ppm ASTM D5185m 2775 3001 3185 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 8 9 8 Sodium ppm ASTM D5185m >25 8 9 8 Sodium ppm ASTM D5185m >20 23 28 87 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.3 0.3 0.3 Nitration Abs/cm *ASTM D7624 >20 11.4 13.0 12.3 Sulfation Abs/.tmm *ASTM D7415 >30 26.5 27.8 27.9 FLUID DEGRADATION method limit/base current history1	Calcium		ASTM D5185m		2012	2022	2221
Zinc ppm ASTM D5185m 1105 1214 1164 Sulfur ppm ASTM D5185m 2775 3001 3185 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 8 9 8 Sodium ppm ASTM D5185m >25 8 9 8 Sodium ppm ASTM D5185m >20 23 28 87 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.3 0.3 0.3 Nitration Abs/cm *ASTM D7624 >20 11.4 13.0 12.3 Sulfation Abs/.tmm *ASTM D7415 >30 26.5 27.8 27.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.tmm *ASTM D7414 >25 26.	Phosphorus					977	969
SulfurppmASTM D5185m277530013185CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>25898SodiumppmASTM D5185m>20232887INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7844>30.30.30.3NitrationAbs/cm*ASTM D7624>2011.413.012.3SulfationAbs/limm*ASTM D7415>3026.527.827.9FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/.imm*ASTM D7414>2526.829.530.2	Zinc						
Silicon ppm ASTM D5185m >25 8 9 8 Sodium ppm ASTM D5185m 19 6 0 Potassium ppm ASTM D5185m >20 23 28 87 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.3 0.3 0.3 Nitration Abs/cm *ASTM D7624 >20 11.4 13.0 12.3 Sulfation Abs/.tmm *ASTM D7415 >30 26.5 27.8 27.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.tmm *ASTM D7414 >25 26.8 29.5 30.2	Sulfur						
Sodium ppm ASTM D5185m 19 6 0 Potassium ppm ASTM D5185m >20 23 28 87 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.3 0.3 0.3 Nitration Abs/cm *ASTM D7624 >20 11.4 13.0 12.3 Sulfation Abs/.1mm *ASTM D7415 >30 26.5 27.8 27.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 26.8 29.5 30.2	CONTAMINANTS	\$	method	limit/base	current	history1	history2
Sodium ppm ASTM D5185m 19 6 0 Potassium ppm ASTM D5185m >20 23 28 87 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.3 0.3 0.3 Nitration Abs/cm *ASTM D7624 >20 11.4 13.0 12.3 Sulfation Abs/.1mm *ASTM D7415 >30 26.5 27.8 27.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 26.8 29.5 30.2	Silicon	ppm	ASTM D5185m	>25	8	9	8
Potassium ppm ASTM D5185m >20 23 28 87 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.3 0.3 0.3 Nitration Abs/cm *ASTM D7624 >20 11.4 13.0 12.3 Sulfation Abs/.1mm *ASTM D7415 >30 26.5 27.8 27.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 26.8 29.5 30.2	Sodium						
Soot % % *ASTM D7844 >3 0.3 0.3 0.3 Nitration Abs/cm *ASTM D7624 >20 11.4 13.0 12.3 Sulfation Abs/.1mm *ASTM D7415 >30 26.5 27.8 27.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 26.8 29.5 30.2	Potassium		ASTM D5185m	>20	23	28	87
Nitration Abs/cm *ASTM D7624 >20 11.4 13.0 12.3 Sulfation Abs/.1mm *ASTM D7624 >30 26.5 27.8 27.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 26.8 29.5 30.2	INFRA-RED		method	limit/base	current	history1	history2
Nitration Abs/cm *ASTM D7624 >20 11.4 13.0 12.3 Sulfation Abs/.1mm *ASTM D7624 >30 26.5 27.8 27.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 26.8 29.5 30.2	Soot %	%	*ASTM D7844	>3	0.3	0.3	0.3
Sulfation Abs/.1mm *ASTM D7415 >30 26.5 27.8 27.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 26.8 29.5 30.2							
Oxidation Abs/.1mm *ASTM D7414 >25 26.8 29.5 30.2							
	FLUID DEGRADA	TION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	26.8	29.5	30.2
	Base Number (BN)	mg KOH/g			9.4	8.7	8.4



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 PROPER	TIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14	14.0	14.5	13.7
GRAPHS						



Report Id: SHEWIC [WUSCAR] 06060875 (Generated: 01/17/2024 22:00:43) Rev: 1

F: x: