

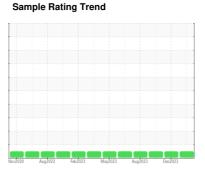
# **OIL ANALYSIS REPORT**



OKLAHOMA/1152/EG - OTHER SERVICE 88.15L [OKLAHOMA^1152^EG - OTHER SERVICE]

**Diesel Engine** 

MOBIL DELVAC 1300 SUPER15W40 (--- GAL)





**NORMAL** 

## DIAGNOSIS

### Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

### Contamination

There is no indication of any contamination in the

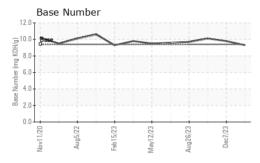
### **Fluid Condition**

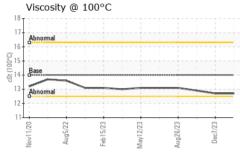
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Number   Client Info   WC0873900   WC0874038   WC0848836   Sample Date   Client Info   12 Jan 2024   07 Dec 2023   20 Oct 2023   Amachine Age   hrs   Client Info   500   250   3521   Oil Age   hrs   Client Info   500   250   3521   Oil Changed   Not Changed   NORMAL   NORM	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Date	Sample Number		Client Info		WC0873900	WC0874038	WC0848836
Machine Age	•		Client Info		12 Jan 2024	07 Dec 2023	20 Oct 2023
Oil Age         hrs         Client Info         500         250         3521           Oil Changed Sample Status         Client Info         Changed Not Changd Not Changd Not Changd Not Changd Not Changd NoRMAL         NoRMAL NORMAL         N		hrs					
Client Info   Changed Not Changed NORMAL   NORMAL NORMAL		hrs	Client Info		500	250	3521
NORMAL   NORMAL   NORMAL   CONTAMINATION   method   limit/base   current   history1   history2	•		Client Info		Changed	Not Changd	Not Changd
Fuel					NORMAL	Ü	Ü
Water Glycol         WC Method         >0.2         NEG         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >100         5         7         3           Chromium         ppm         ASTM D5185m         >20         0         <1	CONTAMINATION	٧	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>5	<1.0	<1.0	<1.0
WEAR METALS	Water		WC Method	>0.2	NEG	NEG	NEG
WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >100         5         7         3           Chromium         ppm         ASTM D5185m         >20         0         <1	Glycol		WC Method		NEG	NEG	NEG
Iron			method	limit/base	current	history1	history2
Chromium         ppm         ASTM D5185m         >20         0         <1         0           Nickel         ppm         ASTM D5185m         >2         0         0         0           Titanium         ppm         ASTM D5185m         >2         0         <1         <1           Silver         ppm         ASTM D5185m         >2         0         0         0           Aluminum         ppm         ASTM D5185m         >2         2         3         <1           Lead         ppm         ASTM D5185m         >40         0         0         0           Copper         ppm         ASTM D5185m         >40         0         0         0           Vanadium         ppm         ASTM D5185m         >15         <1         0         0           Vanadium         ppm         ASTM D5185m         0         45         44         58           Barium         ppm         ASTM D5185m         0         45         44         58           Barium         ppm         ASTM D5185m         0         <1         0         0           Molybdenum         ppm         ASTM D5185m         0         <1         0		nnm	ASTM D5185m	>100	5		
Nickel         ppm         ASTM D5185m         >2         0         0         0           Titanium         ppm         ASTM D5185m         >2         0         <1		• •					
Titanium					•		
Silver		• •					_
Aluminum         ppm         ASTM D5185m         >25         2         3         <1           Lead         ppm         ASTM D5185m         >40         0         0         0           Copper         ppm         ASTM D5185m         >330         <1							
Lead         ppm         ASTM D5185m         >40         0         0         0           Copper         ppm         ASTM D5185m         >330         <1         <1         1           Tin         ppm         ASTM D5185m         >15         <1         0         0           Vanadium         ppm         ASTM D5185m         0         0         0         <1           Cadmium         ppm         ASTM D5185m         0         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         45         44         58           Barium         ppm         ASTM D5185m         0         <1         0         0           Molybdenum         ppm         ASTM D5185m         0         <1         0         0           Magnesium         ppm         ASTM D5185m         <1         0         <1         478           Calcium         ppm         ASTM D5185m         1633         1712         1590           Phosphorus         ppm         ASTM D5185m         933         930         857		• •					
Copper         ppm         ASTM D5185m         >330         <1         <1         1           Tin         ppm         ASTM D5185m         >15         <1					_		
Tin		• •			-		
Vanadium         ppm         ASTM D5185m         0         0         <1           Cadmium         ppm         ASTM D5185m         0         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         45         44         58           Barium         ppm         ASTM D5185m         0         <1         0         0           Molybdenum         ppm         ASTM D5185m         0         44         44         41           Mangaese         ppm         ASTM D5185m         <1         0         <1         0         <1           Magnesium         ppm         ASTM D5185m         0         516         517         478           Calcium         ppm         ASTM D5185m         1633         1712         1590           Phosphorus         ppm         ASTM D5185m         762         727         660           Zinc         ppm         ASTM D5185m         933         930         857           Sulfur         ppm         ASTM D5185m         >25         3         3         4							
Cadmium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         45         44         58           Barium         ppm         ASTM D5185m         0         <1		• •		710			
ADDITIVES					-		
Boron	ADDITIVES	1-1-	method	limit/base	current	historv1	historv2
Barium         ppm         ASTM D5185m         0         <1         0         0           Molybdenum         ppm         ASTM D5185m         0         44         44         41           Manganese         ppm         ASTM D5185m         0         516         517         478           Calcium         ppm         ASTM D5185m         0         516         517         478           Calcium         ppm         ASTM D5185m         1633         1712         1590           Phosphorus         ppm         ASTM D5185m         762         727         660           Zinc         ppm         ASTM D5185m         933         930         857           Sulfur         ppm         ASTM D5185m         2380         2641         2347           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         3         3         4           Sodium         ppm         ASTM D5185m         >20         0         1         0           INFRA-RED         method         limit/base         current         history1         history2		nnm					
Molybdenum         ppm         ASTM D5185m         0         44         44         41           Manganese         ppm         ASTM D5185m         <1         0         <1           Magnesium         ppm         ASTM D5185m         0         516         517         478           Calcium         ppm         ASTM D5185m         0         516         517         478           Calcium         ppm         ASTM D5185m         1633         1712         1590           Phosphorus         ppm         ASTM D5185m         762         727         660           Zinc         ppm         ASTM D5185m         933         930         857           Sulfur         ppm         ASTM D5185m         2380         2641         2347           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         3         3         4           Sodium         ppm         ASTM D5185m         >20         0         1         0           INFRA-RED         method         limit/base         current         history1         history2           Soot % <th></th> <td>• •</td> <td></td> <td></td> <th></th> <td></td> <td></td>		• •					
Manganese         ppm         ASTM D5185m         <1         0         <1           Magnesium         ppm         ASTM D5185m         0         516         517         478           Calcium         ppm         ASTM D5185m         1633         1712         1590           Phosphorus         ppm         ASTM D5185m         762         727         660           Zinc         ppm         ASTM D5185m         933         930         857           Sulfur         ppm         ASTM D5185m         2380         2641         2347           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         3         3         4           Sodium         ppm         ASTM D5185m         >20         0         1         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.2         0.2         0.1           Nitration         Abs/cm         *ASTM D7845         >30         22.1         22.1         22.1         22.0							
Magnesium         ppm         ASTM D5185m         0         516         517         478           Calcium         ppm         ASTM D5185m         1633         1712         1590           Phosphorus         ppm         ASTM D5185m         762         727         660           Zinc         ppm         ASTM D5185m         933         930         857           Sulfur         ppm         ASTM D5185m         2380         2641         2347           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         3         3         4           Sodium         ppm         ASTM D5185m         >25         3         3         4           Potassium         ppm         ASTM D5185m         >20         0         1         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         *ASTM D7624         >20         8.6         8.4         6.5           Sulfation         Abs/.1mm         *ASTM D7415         >30         22.1         22.1         22.0 <t< td=""><th>•</th><td></td><td></td><td></td><th></th><td></td><td></td></t<>	•						
Calcium         ppm         ASTM D5185m         1633         1712         1590           Phosphorus         ppm         ASTM D5185m         762         727         660           Zinc         ppm         ASTM D5185m         933         930         857           Sulfur         ppm         ASTM D5185m         2380         2641         2347           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         3         3         4           Sodium         ppm         ASTM D5185m         >20         0         1         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.2         0.2         0.1           Nitration         Abs/cm         *ASTM D7624         >20         8.6         8.4         6.5           Sulfation         Abs/.1mm         *ASTM D7415         >30         22.1         22.1         22.0           FLUID DEGRADATION         method         limit/base         current         history1         history2 <th>-</th> <td></td> <td></td> <td>0</td> <th></th> <td></td> <td></td>	-			0			
Phosphorus         ppm         ASTM D5185m         762         727         660           Zinc         ppm         ASTM D5185m         933         930         857           Sulfur         ppm         ASTM D5185m         2380         2641         2347           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         3         3         4           Sodium         ppm         ASTM D5185m         6         4         6           Potassium         ppm         ASTM D5185m         >20         0         1         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.2         0.2         0.1           Nitration         Abs/cm         *ASTM D7624         >20         8.6         8.4         6.5           Sulfation         Abs/.1mm         *ASTM D7415         >30         22.1         22.1         22.0           FLUID DEGRADATION         method         limit/base         current         history1         history2	<u> </u>						
Zinc         ppm         ASTM D5185m         933         930         857           Sulfur         ppm         ASTM D5185m         2380         2641         2347           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         3         3         4           Sodium         ppm         ASTM D5185m         >20         0         1         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.2         0.2         0.1           Nitration         Abs/cm         *ASTM D7624         >20         8.6         8.4         6.5           Sulfation         Abs/.1mm         *ASTM D7415         >30         22.1         22.1         22.0           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         21.8         22.0         20.6					1000		
Sulfur         ppm         ASTM D5185m         2380         2641         2347           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         3         3         4           Sodium         ppm         ASTM D5185m         6         4         6           Potassium         ppm         ASTM D5185m         >20         0         1         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.2         0.2         0.1           Nitration         Abs/cm         *ASTM D7624         >20         8.6         8.4         6.5           Sulfation         Abs/.1mm         *ASTM D7415         >30         22.1         22.1         22.0           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         21.8         22.0         20.6	Поорногао				762	727	660
Silicon         ppm         ASTM D5185m         >25         3         3         4           Sodium         ppm         ASTM D5185m         6         4         6           Potassium         ppm         ASTM D5185m         >20         0         1         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.2         0.2         0.1           Nitration         Abs/cm         *ASTM D7624         >20         8.6         8.4         6.5           Sulfation         Abs/.1mm         *ASTM D7415         >30         22.1         22.1         22.0           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         21.8         22.0         20.6	Zinc.						
Sodium         ppm         ASTM D5185m         6         4         6           Potassium         ppm         ASTM D5185m         >20         0         1         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.2         0.2         0.1           Nitration         Abs/cm         *ASTM D7624         >20         8.6         8.4         6.5           Sulfation         Abs/.1mm         *ASTM D7415         >30         22.1         22.1         22.0           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         21.8         22.0         20.6	-	ppm	ASTM D5185m		933	930	857
Potassium         ppm         ASTM D5185m         >20         0         1         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.2         0.2         0.1           Nitration         Abs/cm         *ASTM D7624         >20         8.6         8.4         6.5           Sulfation         Abs/.1mm         *ASTM D7415         >30         22.1         22.1         22.0           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         21.8         22.0         20.6	Sulfur	ppm ppm	ASTM D5185m ASTM D5185m	limit/base	933 2380	930 2641	857 2347
INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.2         0.2         0.1           Nitration         Abs/cm         *ASTM D7624         >20         8.6         8.4         6.5           Sulfation         Abs/.1mm         *ASTM D7415         >30         22.1         22.1         22.0           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         21.8         22.0         20.6	Sulfur CONTAMINANTS	ppm ppm	ASTM D5185m ASTM D5185m method		933 2380 current	930 2641 history1	857 2347 history2
Soot %         %         *ASTM D7844 >3         0.2         0.2         0.1           Nitration         Abs/cm         *ASTM D7624 >20         8.6         8.4         6.5           Sulfation         Abs/.1mm         *ASTM D7415 >30         22.1         22.1         22.0           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414 >25         21.8         22.0         20.6	Sulfur  CONTAMINANTS Silicon	ppm ppm	ASTM D5185m ASTM D5185m method ASTM D5185m		933 2380 current	930 2641 history1	857 2347 history2
Nitration         Abs/cm         *ASTM D7624         >20         8.6         8.4         6.5           Sulfation         Abs/.1mm         *ASTM D7415         >30         22.1         22.1         22.0           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         21.8         22.0         20.6	Sulfur  CONTAMINANTS  Silicon  Sodium	ppm ppm	ASTM D5185m ASTM D5185m method ASTM D5185m ASTM D5185m	>25	933 2380 current 3 6	930 2641 history1 3	857 2347 history2 4 6
Sulfation         Abs/.1mm         *ASTM D7415         >30         22.1         22.1         22.0           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         21.8         22.0         20.6	Sulfur  CONTAMINANTS Silicon Sodium Potassium	ppm ppm	ASTM D5185m ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m	>25 >20	933 2380 current 3 6	930 2641 history1 3 4	857 2347 history2 4 6 0
FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     21.8     22.0     20.6	Sulfur  CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m method	>25 >20 limit/base	933 2380 current 3 6 0	930 2641 history1 3 4 1 history1	857 2347 history2 4 6 0 history2
Oxidation Abs/.1mm *ASTM D7414 >25 <b>21.8</b> 22.0 20.6	Sulfur  CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method *ASTM D7844	>25 >20 limit/base >3	933 2380  current 3 6 0  current 0.2	930 2641 history1 3 4 1 history1 0.2	857 2347 history2 4 6 0 history2 0.1
	Sulfur  CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m  method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method *ASTM D7844 *ASTM D7624	>25 >20 limit/base >3 >20	933 2380 current 3 6 0 current 0.2 8.6	930 2641 history1 3 4 1 history1 0.2 8.4	857 2347 history2 4 6 0 history2 0.1 6.5
Base Number (BN) mg KOH/g ASTM D2896 9.4 9.3 9.8 10.1	Sulfur  CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm Abs/cm	ASTM D5185m ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m  method *ASTM D7844 *ASTM D7624 *ASTM D7415	>25 >20 limit/base >3 >20 >30	933 2380  current  3 6 0  current  0.2 8.6 22.1	930 2641 history1 3 4 1 history1 0.2 8.4 22.1	857 2347 history2 4 6 0 history2 0.1 6.5 22.0
	Sulfur  CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRADA	ppm ppm ppm ppm ppm ppm Abs/cm Abs/.1mm	ASTM D5185m ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m  Method *ASTM D7844 *ASTM D7624 *ASTM D7415 method	>25 >20 limit/base >3 >20 >30 limit/base	933 2380  current  3 6 0  current  0.2 8.6 22.1  current	930 2641 history1 3 4 1 history1 0.2 8.4 22.1 history1	857 2347 history2 4 6 0 history2 0.1 6.5 22.0 history2



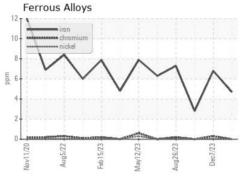
## **OIL ANALYSIS REPORT**

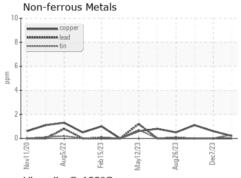


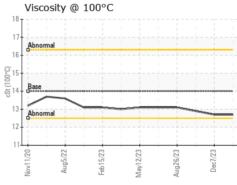


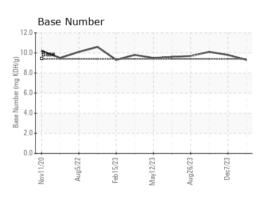
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
<b>Emulsified Water</b>	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

FLUID PROPERTIES		method				history2
Visc @ 100°C	cSt	ASTM D445	14	12.7	12.7	12.9













Laboratory Sample No. Lab Number : 06076638 Unique Number: 10858729

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : WC0873900

Received **Tested** 

Diagnosed Test Package : CONST ( Additional Tests: TBN )

: 01 Feb 2024 : 01 Feb 2024

: 01 Feb 2024 - Wes Davis

SHERWOOD CONSTRUCTION CO INC 3219 WEST MAY ST WICHITA, KS US 67213

Contact: DOUG KING doug.king@sherwood.net T: (316)617-3161

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)

F: x: