



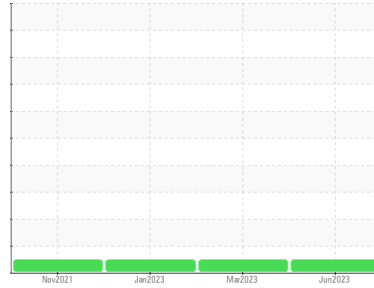
# OIL ANALYSIS REPORT

Sample Rating Trend

**NORMAL**



Area  
**DIGGER DERRICK**  
 Machine Id  
**FREIGHTLINER V334**  
 Component  
**Diesel Engine**  
 Fluid  
**HIGH PERFORMANCE LUBRICANTS HDMO 15W40 (17 QTS)**



## 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 INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		<b>HPL0001778</b>	HPL0000643	HPL0000672
Sample Date	Client Info		<b>09 Jun 2023</b>	23 Mar 2023	18 Jan 2023
Machine Age	hrs	Client Info	<b>2258</b>	2258	2031
Oil Age	hrs	Client Info	<b>230</b>	878	651
Oil Changed	Client Info		<b>Not Changed</b>	Changed	Not Changed
Sample Status			<b>NORMAL</b>	NORMAL	NORMAL

## CONTAMINATION

	method	limit/base	current	history1	history2
Fuel	WC Method	>3.0	<b>&lt;1.0</b>	<1.0	<1.0
Glycol	WC Method		<b>NEG</b>	NEG	NEG

## WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >90	<b>22</b>	52	43
Chromium	ppm	ASTM D5185m >20	<b>&lt;1</b>	1	1
Nickel	ppm	ASTM D5185m >2	<b>0</b>	<1	<1
Titanium	ppm	ASTM D5185m >2	<b>0</b>	<1	<1
Silver	ppm	ASTM D5185m >2	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m >20	<b>&lt;1</b>	6	4
Lead	ppm	ASTM D5185m >40	<b>1</b>	0	<1
Copper	ppm	ASTM D5185m >330	<b>3</b>	11	14
Tin	ppm	ASTM D5185m >15	<b>&lt;1</b>	<1	<1
Antimony	ppm	ASTM D5185m	<b>---</b>	---	---
Vanadium	ppm	ASTM D5185m	<b>&lt;1</b>	<1	<1
Cadmium	ppm	ASTM D5185m	<b>0</b>	0	0

## ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m 200	<b>194</b>	154	171
Barium	ppm	ASTM D5185m	<b>0</b>	4	4
Molybdenum	ppm	ASTM D5185m 85	<b>685</b>	706	670
Manganese	ppm	ASTM D5185m	<b>&lt;1</b>	1	1
Magnesium	ppm	ASTM D5185m 525	<b>488</b>	440	428
Calcium	ppm	ASTM D5185m 4300	<b>4128</b>	3825	3665
Phosphorus	ppm	ASTM D5185m 1000	<b>879</b>	827	750
Zinc	ppm	ASTM D5185m 1100	<b>1093</b>	1013	957
Sulfur	ppm	ASTM D5185m 20200	<b>21592</b>	17108	19975

## CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >25	<b>12</b>	20	19
Sodium	ppm	ASTM D5185m	<b>2</b>	3	2
Potassium	ppm	ASTM D5185m >20	<b>2</b>	5	2

## INFRA-RED

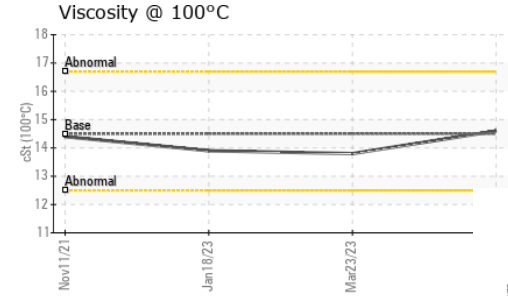
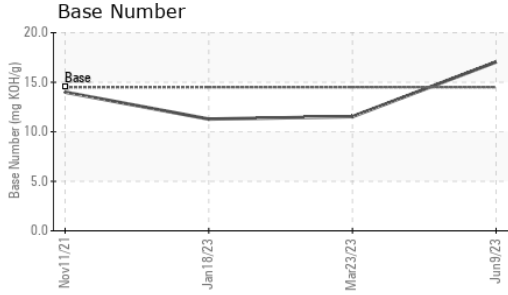
	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844 >6	<b>0.2</b>	0.3	0.3
Nitration	Abs/cm	*ASTM D7624 >20	<b>9.3</b>	12.0	11.6
Sulfation	Abs/.1mm	*ASTM D7415 >30	<b>28.4</b>	33.4	31.9

## FLUID DEGRADATION

	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414 >25	<b>18.6</b>	23.8	22.3
Base Number (BN)	mg KOH/g	ASTM D2896 14.5	<b>17.05</b>	11.53	11.28



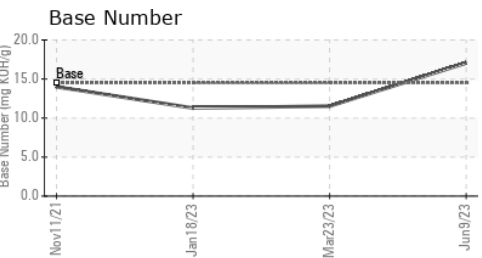
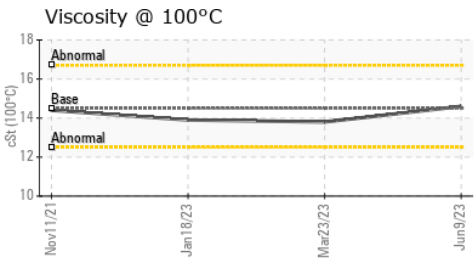
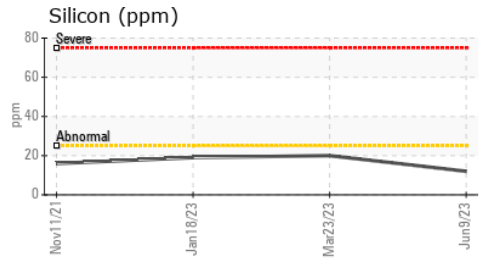
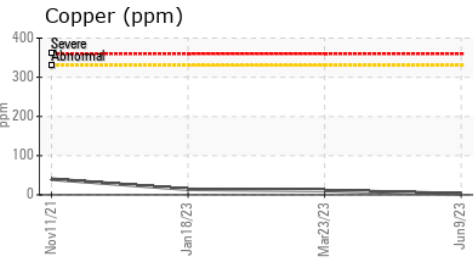
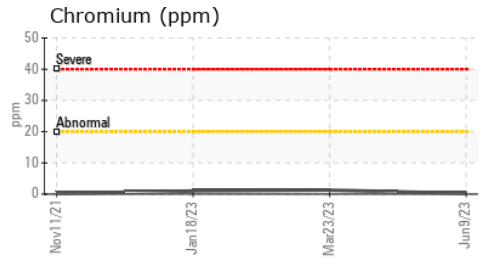
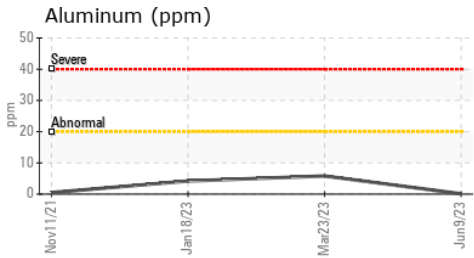
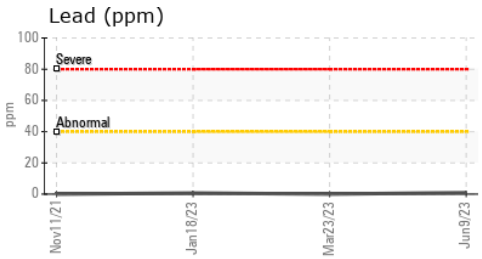
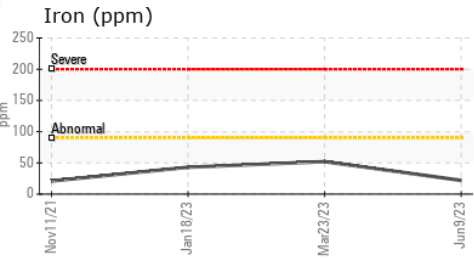
# OIL ANALYSIS REPORT



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

FLUID PROPERTIES	method	limit/base	current	history1	history2	
Visc @ 100°C	cSt	ASTM D445	14.5	<b>14.6</b>	13.8	13.9

## GRAPHS



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : HPL0001778 **Received** : 14 Jun 2023  
**Lab Number** : **05873382** **Diagnosed** : 15 Jun 2023  
**Unique Number** : 10513166 **Diagnostician** : Wes Davis  
**Test Package** : MOB 2

**MUSCATINE POWER AND WATER**  
 3205 CEDAR STREET  
 MUSCATINE, IA  
 US 52761  
 Contact: JUSTIN CONKLIN  
 justin.conklin@mpw.org  
 T: (563)262-3351  
 F:

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)