



# OIL ANALYSIS REPORT

WEAR	<b>NORMAL</b>
CONTAMINATION	<b>NORMAL</b>
FLUID CONDITION	<b>NORMAL</b>

Area  
**Store 9 - Marietta**

Machine Id

**1122**

Component

**Diesel Engine**

Fluid

**SHELL ROTELLA T 15W40 (10 GAL)**

## RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>LEC0050215</b>	LEC0047237	LEC0044837
Sample Date		Client Info		<b>08 Jun 2024</b>	22 Apr 2024	27 Nov 2023
Machine Age	hrs	Client Info		<b>12830</b>	249058	11351
Oil Age	hrs	Client Info		<b>400</b>	5000	400
Filter Age	hrs	Client Info		<b>400</b>	5000	400
Oil Changed		Client Info		<b>Changed</b>	Changed	Changed
Filter Changed		Client Info		<b>Changed</b>	Changed	Changed
Sample Status				<b>NORMAL</b>	NORMAL	NORMAL

## WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	<b>30</b>	16	12
Chromium	ppm	ASTM D5185m	>20	<b>1</b>	<1	<1
Nickel	ppm	ASTM D5185m	>4	<b>&lt;1</b>	<1	0
Titanium	ppm	ASTM D5185m		<b>2</b>	1	0
Silver	ppm	ASTM D5185m	>3	<b>&lt;1</b>	0	0
Aluminum	ppm	ASTM D5185m	>20	<b>4</b>	4	3
Lead	ppm	ASTM D5185m	>40	<b>2</b>	<1	1
Copper	ppm	ASTM D5185m	>330	<b>6</b>	<1	<1
Tin	ppm	ASTM D5185m	>15	<b>&lt;1</b>	<1	0
Vanadium	ppm	ASTM D5185m		<b>&lt;1</b>	<1	<1
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE

## CONTAMINATION

There is no indication of any contamination in the oil.

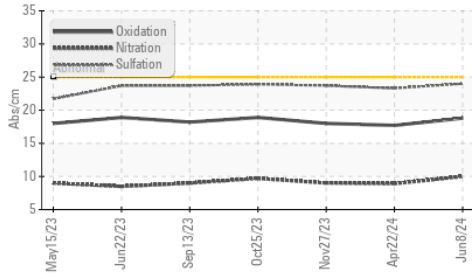
Silicon	ppm	ASTM D5185m	>120	<b>7</b>	8	6
Potassium	ppm	ASTM D5185m	>20	<b>4</b>	3	<1
Fuel		WC Method	>5	<b>&lt;1.0</b>	<1.0	<1.0
Water		WC Method	>0.2	<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844	>3	<b>0.6</b>	0.4	0.4
Nitration	Abs/cm	*ASTM D7624	>20	<b>10.0</b>	8.9	9.0
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>24.0</b>	23.3	23.7
Silt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Debris	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Appearance	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Odor	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	<b>NEG</b>	NEG	NEG

## FLUID CONDITION

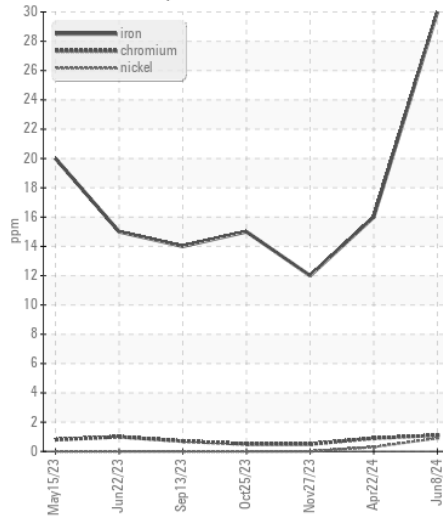
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m		<b>&lt;1</b>	1	1
Boron	ppm	ASTM D5185m	316	<b>193</b>	325	262
Barium	ppm	ASTM D5185m	0.0	<b>2</b>	0	0
Molybdenum	ppm	ASTM D5185m	1.2	<b>91</b>	94	133
Manganese	ppm	ASTM D5185m		<b>1</b>	<1	<1
Magnesium	ppm	ASTM D5185m	24	<b>452</b>	472	695
Calcium	ppm	ASTM D5185m	2292	<b>1449</b>	1426	1627
Phosphorus	ppm	ASTM D5185m	1064	<b>923</b>	964	772
Zinc	ppm	ASTM D5185m	1160	<b>1209</b>	1136	901
Sulfur	ppm	ASTM D5185m	4996	<b>3095</b>	3345	2534
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>18.8</b>	17.7	18.0
Base Number (BN)	mg KOH/g	ASTM D2896	10.1	<b>6.7</b>	7.2	8.5
Visc @ 100°C	cSt	ASTM D445	15.7	<b>13.1</b>	13.0	12.7

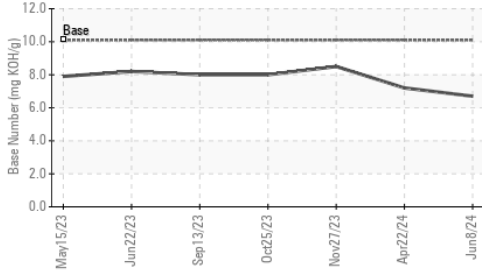
**FT-IR (Direct Trend)**



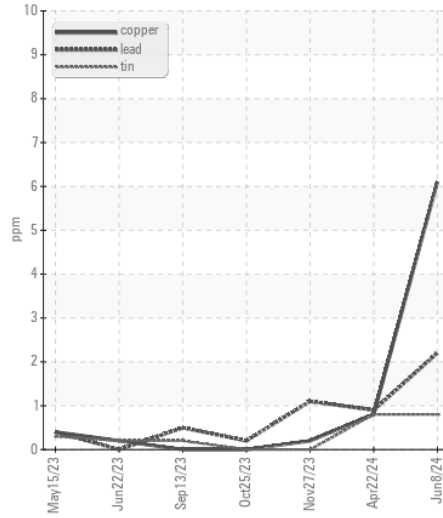
**Ferrous Alloys**



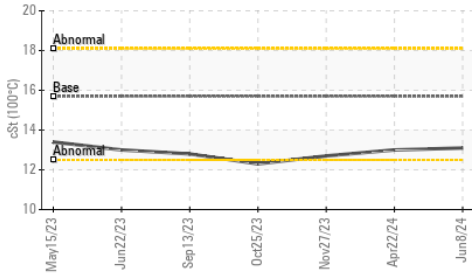
**Base Number**



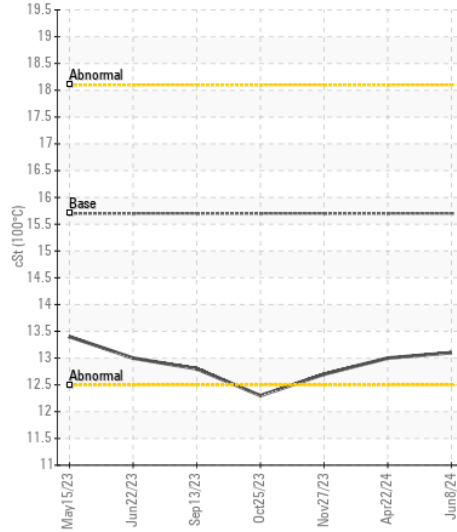
**Non-ferrous Metals**



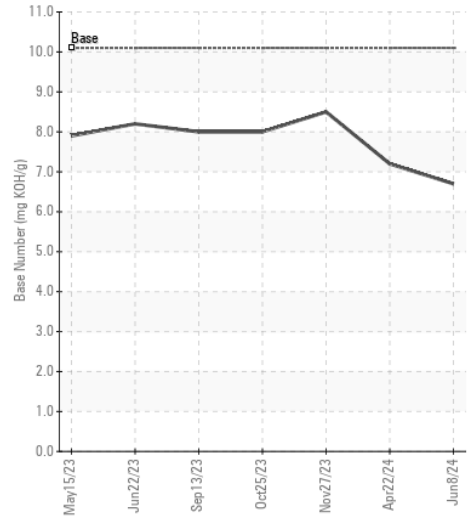
**Viscosity @ 100°C**



**Viscosity @ 100°C**



**Base Number**



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : LEC0050215  
**Lab Number** : 06219498  
**Unique Number** : 11097695  
**Test Package** : CONST ( Additional Tests: TBN )

**Received** : 25 Jun 2024  
**Tested** : 26 Jun 2024  
**Diagnosed** : 26 Jun 2024 - Don Baldrige

**HALL DRILLING LLC**  
 PO BOX 249  
 ELLENBORO, WV  
 US 26346

Contact: CHRIS PETROVICH  
 chrispetrovich@halldrilling.com

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)

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