



# OIL ANALYSIS REPORT

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

Area  
**Store 9 - Marietta**  
Machine Id  
**KENWORTH 1032**

Component  
**Diesel Engine**  
Fluid  
**SHELL ROTELLA T 15W40 (10 GAL)**

## RECOMMENDATION

We advise that you check for the source of the coolant leak. Check for low coolant level. Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>LEC0048281</b>	LEC0046173	LEC0044052
Sample Date		Client Info		<b>11 Mar 2024</b>	06 Dec 2023	29 Nov 2023
Machine Age	hrs	Client Info		<b>45374</b>	44100	1016045
Oil Age	hrs	Client Info		<b>400</b>	400	10000
Filter Age	hrs	Client Info		<b>400</b>	400	10000
Oil Changed		Client Info		<b>Changed</b>	Changed	Changed
Filter Changed		Client Info		<b>Changed</b>	Changed	Changed
Sample Status				<b>ABNORMAL</b>	NORMAL	NORMAL

## WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	<b>33</b>	16	15
Chromium	ppm	ASTM D5185m	>20	<b>0</b>	<1	<1
Nickel	ppm	ASTM D5185m	>4	<b>0</b>	<1	<1
Titanium	ppm	ASTM D5185m		<b>0</b>	<1	<1
Silver	ppm	ASTM D5185m	>3	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m	>20	<b>3</b>	4	10
Lead	ppm	ASTM D5185m	>40	<b>24</b>	10	4
Copper	ppm	ASTM D5185m	>330	<b>&lt;1</b>	<1	<1
Tin	ppm	ASTM D5185m	>15	<b>0</b>	<1	<1
Vanadium	ppm	ASTM D5185m		<b>0</b>	0	0
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE

## CONTAMINATION

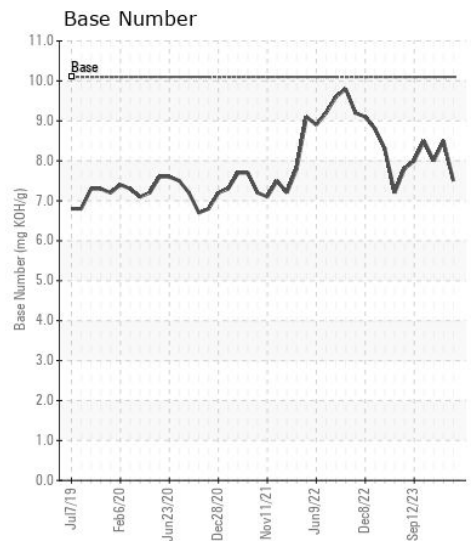
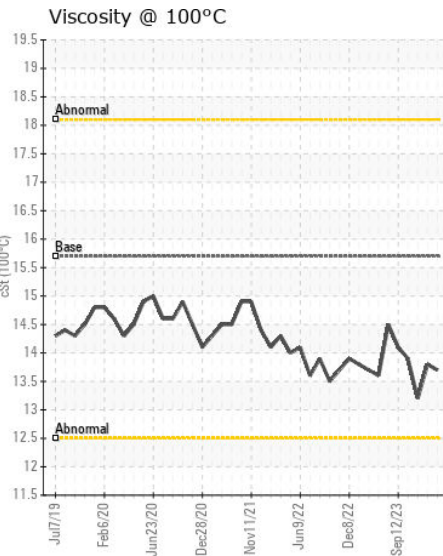
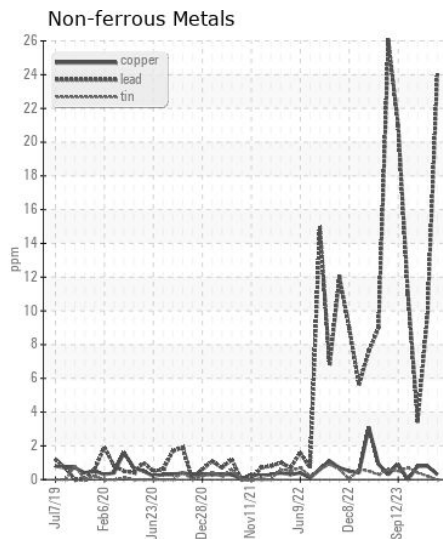
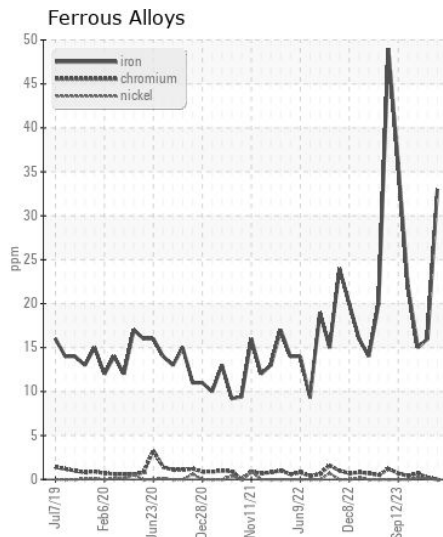
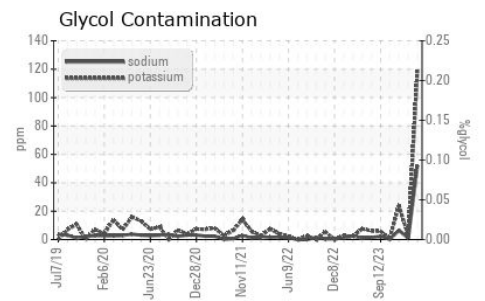
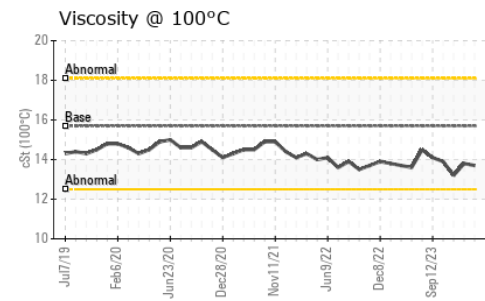
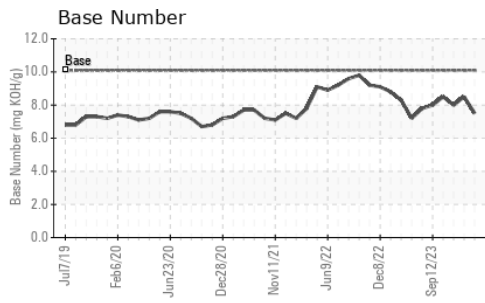
Sodium and/or potassium levels are high.

Silicon	ppm	ASTM D5185m	>120	<b>7</b>	6	6
Potassium	ppm	ASTM D5185m	>20	<b>▲ 120</b>	2	24
Fuel		WC Method	>5	<b>&lt;1.0</b>	<1.0	<1.0
Water		WC Method	>0.2	<b>NEG</b>	NEG	NEG
Glycol	%	*ASTM D2982		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844	>3	<b>1.1</b>	0.9	0.3
Nitration	Abs/cm	*ASTM D7624	>20	<b>12.0</b>	10.4	9.0
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>27.4</b>	25.8	24.4
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.

Sodium	ppm	ASTM D5185m		<b>▲ 52</b>	<1	6
Boron	ppm	ASTM D5185m	316	<b>148</b>	214	233
Barium	ppm	ASTM D5185m	0.0	<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m	1.2	<b>155</b>	140	135
Manganese	ppm	ASTM D5185m		<b>0</b>	<1	<1
Magnesium	ppm	ASTM D5185m	24	<b>725</b>	669	651
Calcium	ppm	ASTM D5185m	2292	<b>1744</b>	1570	1523
Phosphorus	ppm	ASTM D5185m	1064	<b>770</b>	773	717
Zinc	ppm	ASTM D5185m	1160	<b>919</b>	904	869
Sulfur	ppm	ASTM D5185m	4996	<b>3119</b>	2655	2653
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>22.3</b>	20.0	18.6
Base Number (BN)	mg KOH/g	ASTM D2896	10.1	<b>7.5</b>	8.5	8.0
Visc @ 100°C	cSt	ASTM D445	15.7	<b>13.7</b>	13.8	13.2



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : LEC0048281 **Received** : 20 Mar 2024  
**Lab Number** : 06123337 **Tested** : 22 Mar 2024  
**Unique Number** : 10937488 **Diagnosed** : 22 Mar 2024 - Jonathan Hester  
**Test Package** : CONST ( Additional Tests: Glycol, TBN )

**HALL DRILLING LLC**  
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 US 26346

Contact: CHRIS PETROVICH  
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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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