



# OIL ANALYSIS REPORT

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

Area  
**Store 9 - Marietta**

Machine Id  
**1108**

Component  
**Diesel Engine**

Fluid  
**SHELL ROTELLA T 15W40 (--- GAL)**

## RECOMMENDATION

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>LEC0050842</b>	LEC0050624	LEC0048269
Sample Date		Client Info		<b>29 Jun 2024</b>	14 May 2024	08 Apr 2024
Machine Age	mls	Client Info		<b>0</b>	250564	8558
Oil Age	mls	Client Info		<b>0</b>	5000	400
Filter Age	mls	Client Info		<b>0</b>	5000	400
Oil Changed		Client Info		<b>Changed</b>	Changed	Changed
Filter Changed		Client Info		<b>Changed</b>	Changed	Changed
Sample Status				<b>MARGINAL</b>	SEVERE	ATTENTION

## WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	<b>12</b>	16	13
Chromium	ppm	ASTM D5185m	>20	<b>&lt;1</b>	1	<1
Nickel	ppm	ASTM D5185m	>4	<b>0</b>	<1	0
Titanium	ppm	ASTM D5185m		<b>1</b>	2	2
Silver	ppm	ASTM D5185m	>3	<b>0</b>	1	0
Aluminum	ppm	ASTM D5185m	>20	<b>4</b>	3	4
Lead	ppm	ASTM D5185m	>40	<b>0</b>	3	1
Copper	ppm	ASTM D5185m	>330	<b>&lt;1</b>	1	0
Tin	ppm	ASTM D5185m	>15	<b>0</b>	1	0
Vanadium	ppm	ASTM D5185m		<b>0</b>	<1	0
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE

## CONTAMINATION

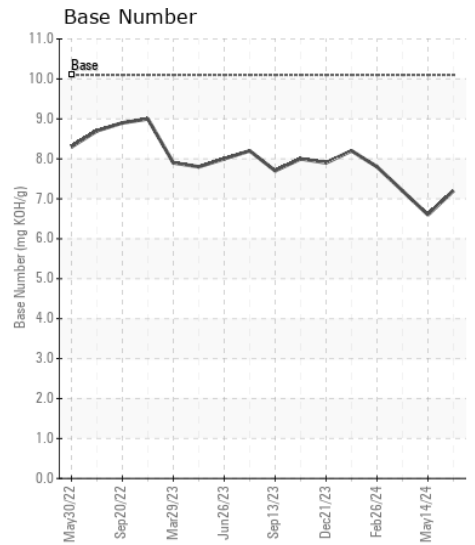
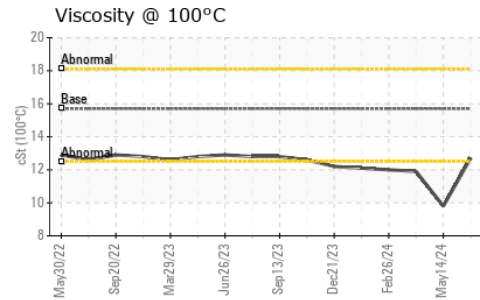
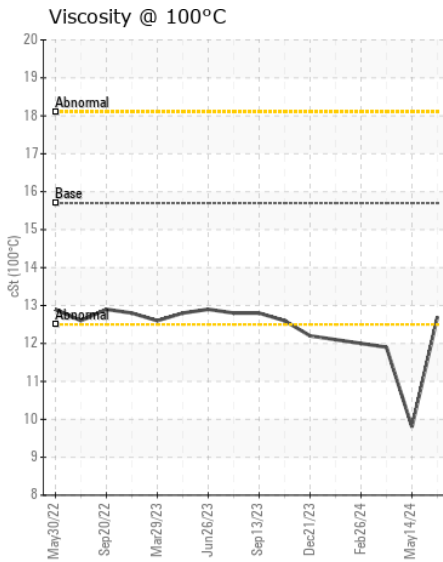
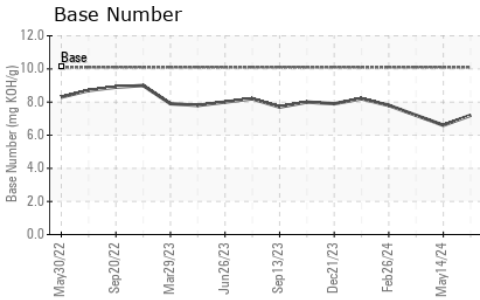
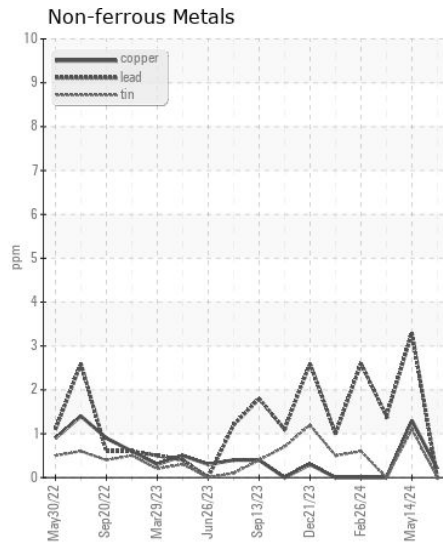
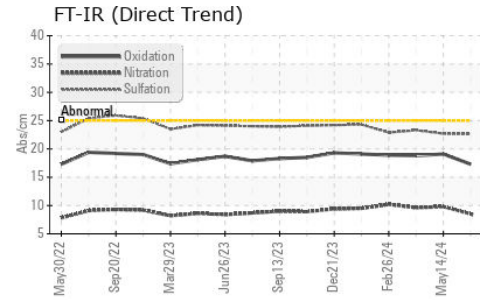
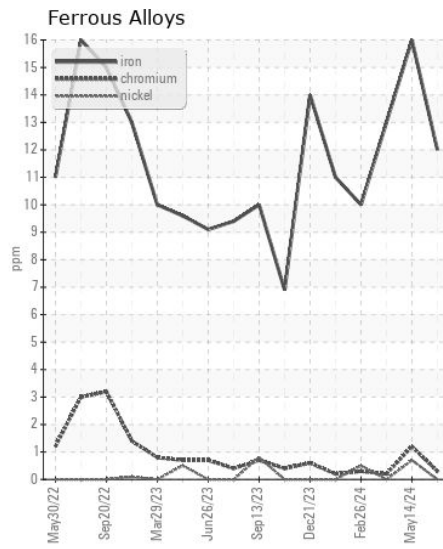
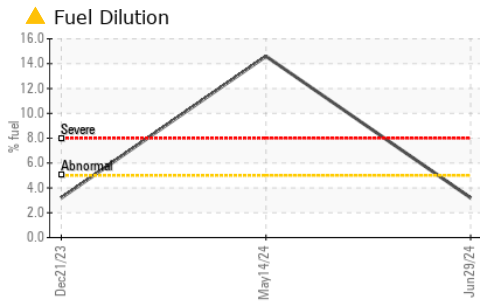
Light fuel dilution occurring.

Silicon	ppm	ASTM D5185m	>120	<b>5</b>	6	5
Potassium	ppm	ASTM D5185m	>20	<b>6</b>	4	4
Fuel	%	ASTM D3524	>5	<b>▲ 3.2</b>	▲ 14.6	<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>0.3</b>	0.4	0.4
Nitration	Abs/cm	*ASTM D7624	>20	<b>8.5</b>	9.8	9.6
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>22.6</b>	22.7	23.3
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>2</b>	<1	<1
Boron	ppm	ASTM D5185m	316	<b>279</b>	246	237
Barium	ppm	ASTM D5185m	0.0	<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m	1.2	<b>90</b>	76	92
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	<1	0
Magnesium	ppm	ASTM D5185m	24	<b>458</b>	377	502
Calcium	ppm	ASTM D5185m	2292	<b>1510</b>	1232	1439
Phosphorus	ppm	ASTM D5185m	1064	<b>1014</b>	808	931
Zinc	ppm	ASTM D5185m	1160	<b>1237</b>	993	1067
Sulfur	ppm	ASTM D5185m	4996	<b>3627</b>	2875	2860
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>17.3</b>	19.1	18.8
Base Number (BN)	mg KOH/g	ASTM D2896	10.1	<b>7.2</b>	6.6	7.2
Visc @ 100°C	cSt	ASTM D445	15.7	<b>12.7</b>	▲ 9.8	● 11.9



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
 Sample No. : LEC0050842  
 Lab Number : 06233089  
 Unique Number : 11116582  
 Test Package : CONST ( Additional Tests: PercentFuel, TBN )

Received : 11 Jul 2024  
 Tested : 12 Jul 2024  
 Diagnosed : 15 Jul 2024 - Jonathan Hester

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