



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Area
Store 9 - Marietta

Machine Id
1089

Component
Diesel Engine

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

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		LEC0045347	LEC0045813	LEC0044841
Sample Date		Client Info		21 Feb 2024	10 Jan 2024	28 Nov 2023
Machine Age	mls	Client Info		588921	576645	562758
Oil Age	mls	Client Info		10000	10000	10000
Filter Age	mls	Client Info		10000	10000	10000
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	21	20	14
Chromium	ppm	ASTM D5185m	>20	2	2	2
Nickel	ppm	ASTM D5185m	>4	1	3	<1
Titanium	ppm	ASTM D5185m		<1	<1	<1
Silver	ppm	ASTM D5185m	>3	0	<1	0
Aluminum	ppm	ASTM D5185m	>20	4	2	3
Lead	ppm	ASTM D5185m	>40	6	7	6
Copper	ppm	ASTM D5185m	>330	4	8	8
Tin	ppm	ASTM D5185m	>15	1	2	1
Vanadium	ppm	ASTM D5185m		0	<1	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

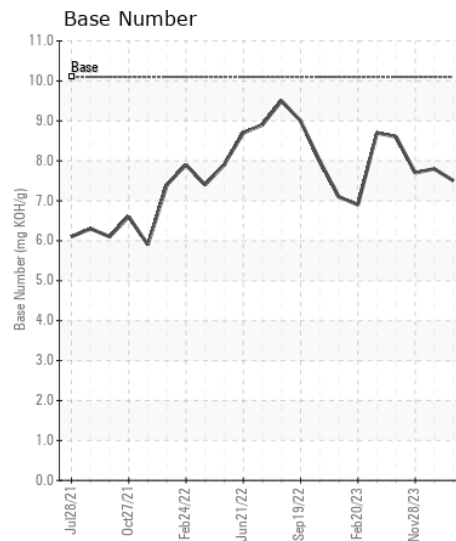
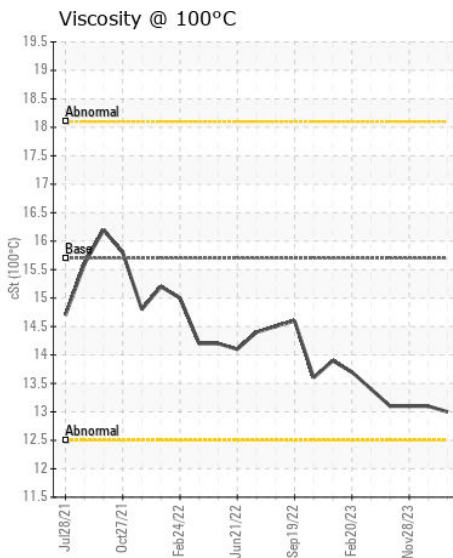
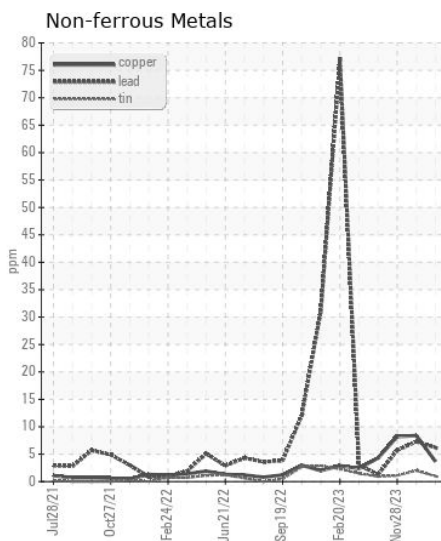
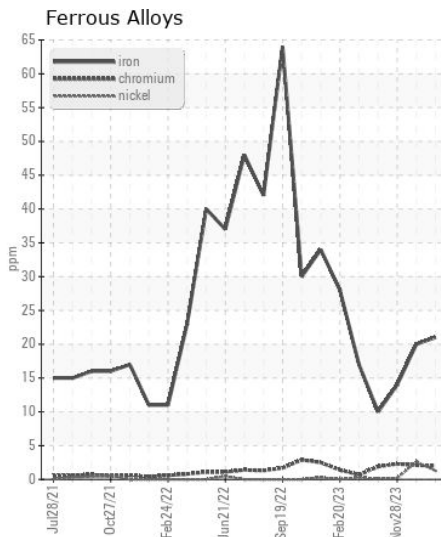
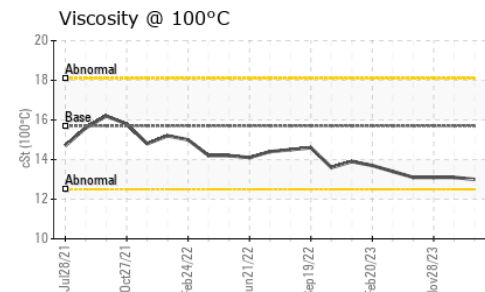
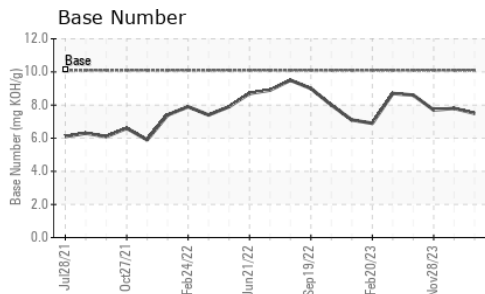
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>120	9	10	11
Potassium	ppm	ASTM D5185m	>20	3	3	2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.5	0.5	0.4
Nitration	Abs/cm	*ASTM D7624	>20	9.6	10.1	9.3
Sulfation	Abs/.1mm	*ASTM D7415	>30	24.9	25.3	24.8
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
Emulsified Water	scalar	*Visual	>0.2	NEG	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		2	0	2
Boron	ppm	ASTM D5185m	316	207	217	228
Barium	ppm	ASTM D5185m	0.0	0	2	0
Molybdenum	ppm	ASTM D5185m	1.2	139	134	136
Manganese	ppm	ASTM D5185m		<1	2	<1
Magnesium	ppm	ASTM D5185m	24	703	693	732
Calcium	ppm	ASTM D5185m	2292	1599	1551	1692
Phosphorus	ppm	ASTM D5185m	1064	754	759	780
Zinc	ppm	ASTM D5185m	1160	941	921	928
Sulfur	ppm	ASTM D5185m	4996	2720	2732	2537
Oxidation	Abs/.1mm	*ASTM D7414	>25	19.5	19.7	18.9
Base Number (BN)	mg KOH/g	ASTM D2896	10.1	7.5	7.8	7.7
Visc @ 100°C	cSt	ASTM D445	15.7	13.0	13.1	13.1



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : LEC0045347
Lab Number : 06102804
Unique Number : 10901034
Test Package : CONST (Additional Tests: TBN)

Received : 28 Feb 2024
Tested : 29 Feb 2024
Diagnosed : 29 Feb 2024 - Don Baldrige

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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