



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	ABNORMAL
FLUID CONDITION	ABNORMAL

SOLD LOCATIONS - LESCAM - CAMBRIDGE

Area

Machine Id

1079

Component

Diesel Engine

Fluid

SHELL ROTELLA T 15W40 (--- 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		LEC0051481	LEC0049781	LEC0041025
Sample Date		Client Info		12 Jul 2024	24 May 2024	19 Oct 2023
Machine Age	hrs	Client Info		36427	35912	35013
Oil Age	hrs	Client Info		400	400	400
Filter Age	hrs	Client Info		400	400	400
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				ABNORMAL	ABNORMAL	ABNORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	19	19	10
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	0	0	0
Titanium	ppm	ASTM D5185m		1	<1	0
Silver	ppm	ASTM D5185m	>3	<1	0	0
Aluminum	ppm	ASTM D5185m	>20	5	5	4
Lead	ppm	ASTM D5185m	>40	1	3	8
Copper	ppm	ASTM D5185m	>330	2	2	<1
Tin	ppm	ASTM D5185m	>15	<1	<1	0
Vanadium	ppm	ASTM D5185m		<1	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

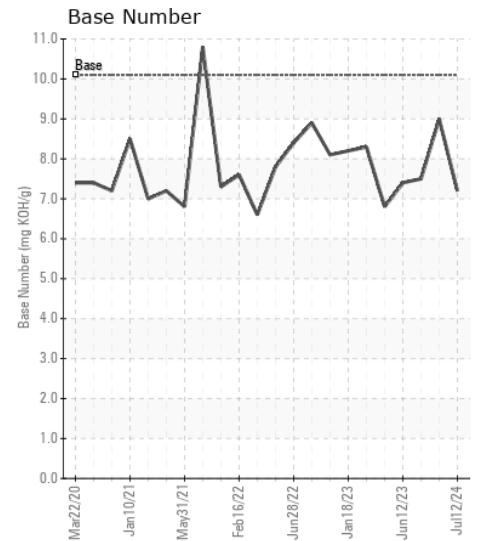
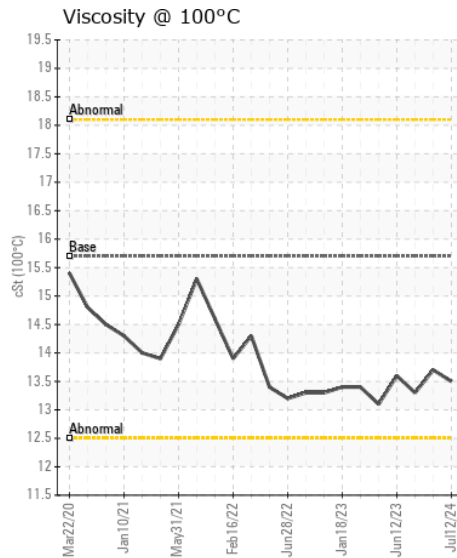
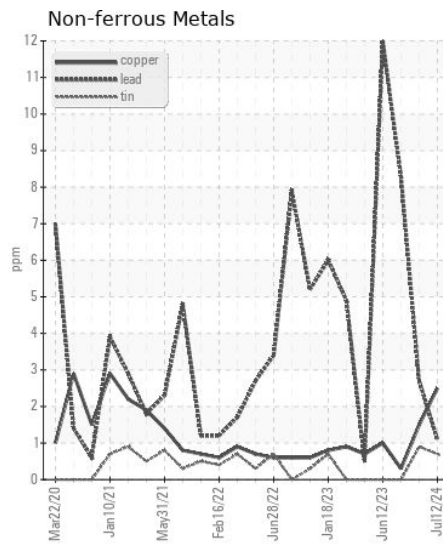
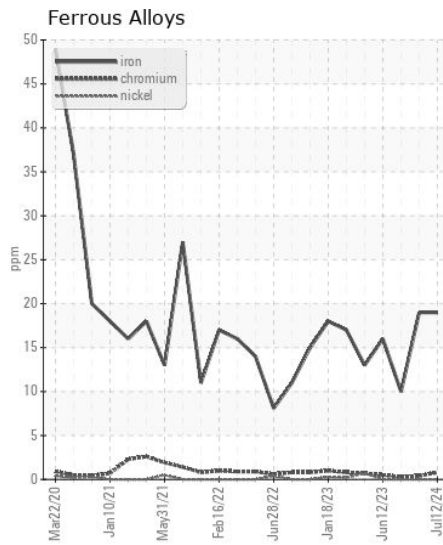
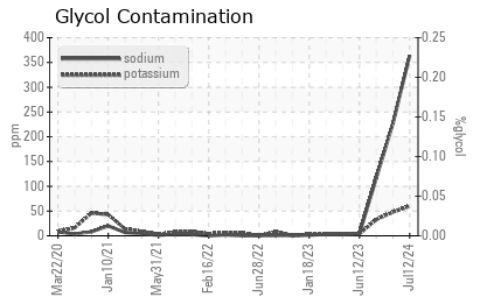
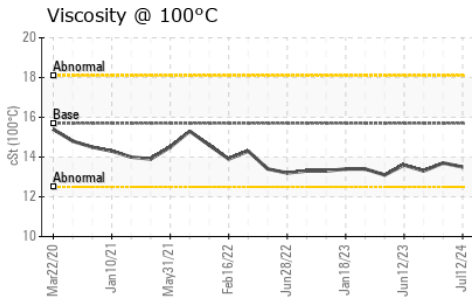
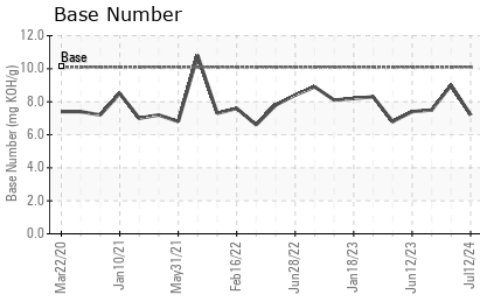
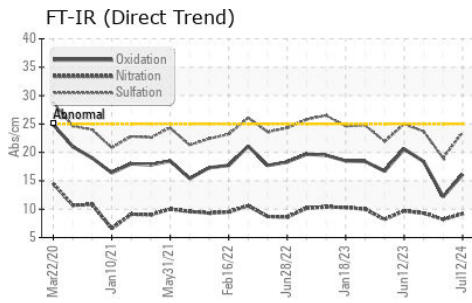
Sodium and/or potassium levels are high.

Silicon	ppm	ASTM D5185m	>120	13	▲ 26	7
Potassium	ppm	ASTM D5185m	>20	▲ 60	▲ 48	▲ 33
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol	%	*ASTM D2982		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.6	0.5	0.4
Nitration	Abs/cm	*ASTM D7624	>20	9.2	8.2	9.3
Sulfation	Abs/.1mm	*ASTM D7415	>30	23.5	19.0	23.7
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.

Sodium	ppm	ASTM D5185m		▲ 364	▲ 227	▲ 116
Boron	ppm	ASTM D5185m	316	296	132	227
Barium	ppm	ASTM D5185m	0.0	0	0	4
Molybdenum	ppm	ASTM D5185m	1.2	136	85	142
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m	24	360	112	615
Calcium	ppm	ASTM D5185m	2292	1704	3177	1304
Phosphorus	ppm	ASTM D5185m	1064	1027	945	718
Zinc	ppm	ASTM D5185m	1160	1241	1075	786
Sulfur	ppm	ASTM D5185m	4996	3271	3576	2111
Oxidation	Abs/.1mm	*ASTM D7414	>25	16.1	12.2	18.4
Base Number (BN)	mg KOH/g	ASTM D2896	10.1	7.2	9.0	7.5
Visc @ 100°C	cSt	ASTM D445	15.7	13.5	13.7	13.3



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : LEC0051481
Lab Number : 06239911
Unique Number : 11128745
Test Package : CONST (Additional Tests: Glycol, TBN)

Received : 18 Jul 2024
Tested : 19 Jul 2024
Diagnosed : 19 Jul 2024 - Sean Felton

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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