



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

SOLD LOCATIONS - LESCAM - CAMBRIDGE

Area
Machine Id
1068
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		LEC0048655	LEC0048279	LEC0043308
Sample Date		Client Info		11 Apr 2024	07 Mar 2024	03 Jul 2023
Machine Age	hrs	Client Info		34066	33584	32393
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				NORMAL	ABNORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	24	18	10
Chromium	ppm	ASTM D5185m	>20	3	2	<1
Nickel	ppm	ASTM D5185m	>4	<1	0	0
Titanium	ppm	ASTM D5185m		2	3	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	6	3	3
Lead	ppm	ASTM D5185m	>40	3	3	37
Copper	ppm	ASTM D5185m	>330	7	14	0
Tin	ppm	ASTM D5185m	>15	2	<1	0
Vanadium	ppm	ASTM D5185m		0	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

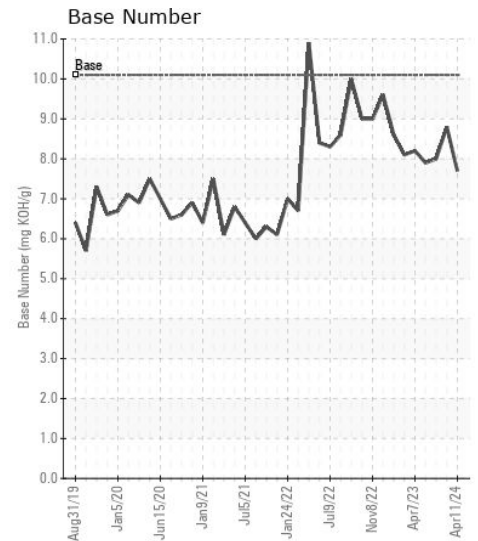
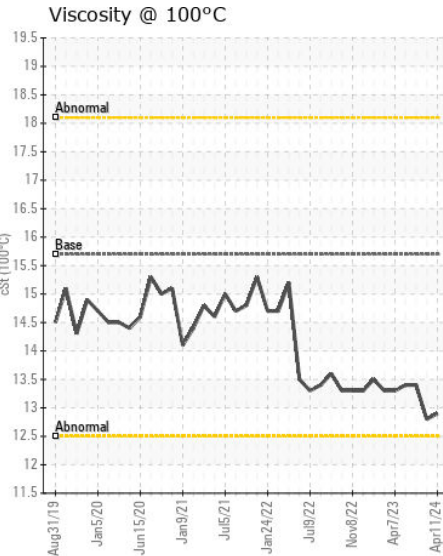
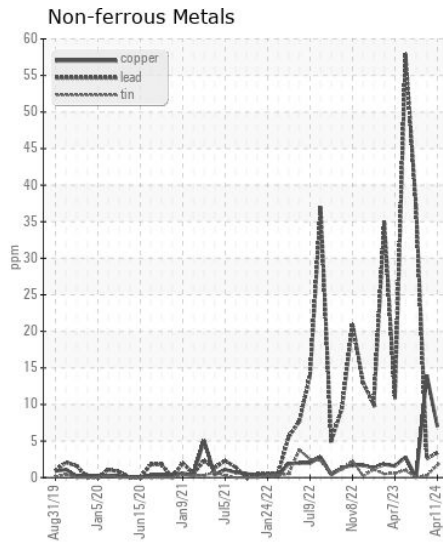
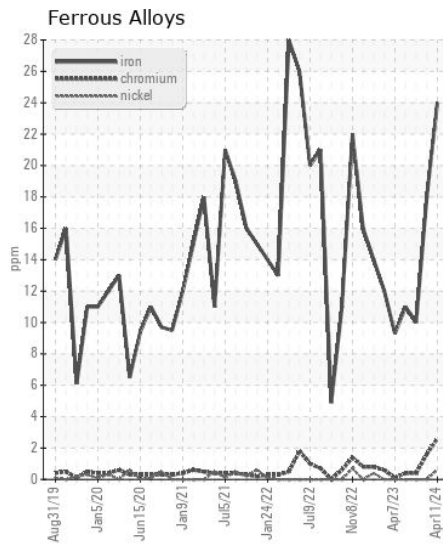
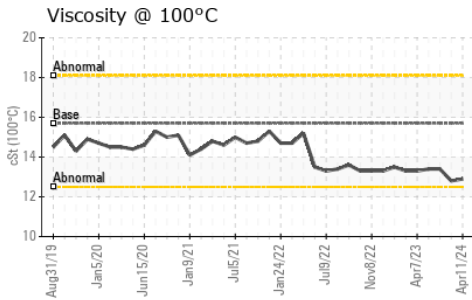
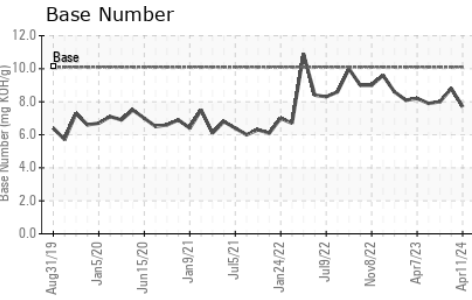
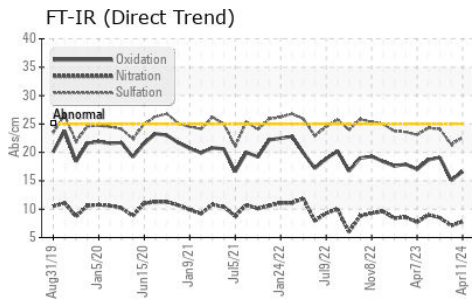
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>120	18	▲ 32	4
Potassium	ppm	ASTM D5185m	>20	4	3	0
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	0.2	0.1	0.3
Nitration	Abs/cm	*ASTM D7624	>20	7.8	7.1	8.5
Sulfation	Abs/.1mm	*ASTM D7415	>30	22.6	21.4	24.1
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 acceptable for the time in service.

Sodium	ppm	ASTM D5185m		4	4	<1
Boron	ppm	ASTM D5185m	316	438	208	227
Barium	ppm	ASTM D5185m	0.0	0	15	0
Molybdenum	ppm	ASTM D5185m	1.2	139	90	122
Manganese	ppm	ASTM D5185m		<1	4	0
Magnesium	ppm	ASTM D5185m	24	735	606	675
Calcium	ppm	ASTM D5185m	2292	2258	2110	1482
Phosphorus	ppm	ASTM D5185m	1064	1477	824	718
Zinc	ppm	ASTM D5185m	1160	1672	964	851
Sulfur	ppm	ASTM D5185m	4996	4536	3527	2791
Oxidation	Abs/.1mm	*ASTM D7414	>25	16.6	15.1	19.1
Base Number (BN)	mg KOH/g	ASTM D2896	10.1	7.7	8.8	8.0
Visc @ 100°C	cSt	ASTM D445	15.7	12.9	12.8	13.4



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : LEC0048655 **Received** : 17 Apr 2024
Lab Number : 06151724 **Tested** : 18 Apr 2024
Unique Number : 10981802 **Diagnosed** : 19 Apr 2024 - Sean Felton
Test Package : CONST (Additional Tests: TBN)

HALL DRILLING LLC
 PO BOX 249
 ELLENBORO, WV
 US 26346

Contact: CHRIS PETROVICH
 chrispetrovich@halldrilling.com
 T: (304)869-3404
 F: (304)869-3408

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)