



WEAR	NORMAL
CONTAMINATION	ABNORMAL
FLUID CONDITION	ABNORMAL

Machine Id
9907
Component
Diesel Engine
Fluid
DIESEL ENGINE OIL SAE 15W40 (--- GAL)

RECOMMENDATION

We advise that you check the fuel injection system. 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		HRE0000155	WC0810317	WC0844988
Sample Date		Client Info		06 May 2024	09 Jan 2024	08 Sep 2023
Machine Age	mls	Client Info		371102	365664	360242
Oil Age	mls	Client Info		6000	0	0
Filter Age	mls	Client Info		6000	0	0
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				ABNORMAL	MARGINAL	ABNORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	9	3	13
Chromium	ppm	ASTM D5185m	>20	<1	<1	1
Nickel	ppm	ASTM D5185m	>4	0	0	0
Titanium	ppm	ASTM D5185m		1	0	<1
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	3	2	2
Lead	ppm	ASTM D5185m	>40	10	0	16
Copper	ppm	ASTM D5185m	>330	2	<1	3
Tin	ppm	ASTM D5185m	>15	<1	0	<1
Vanadium	ppm	ASTM D5185m		0	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

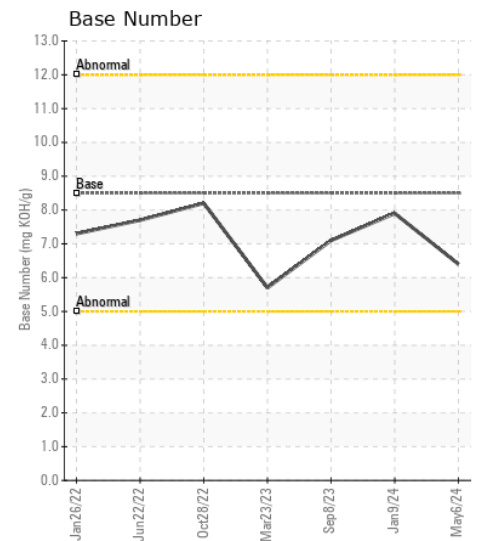
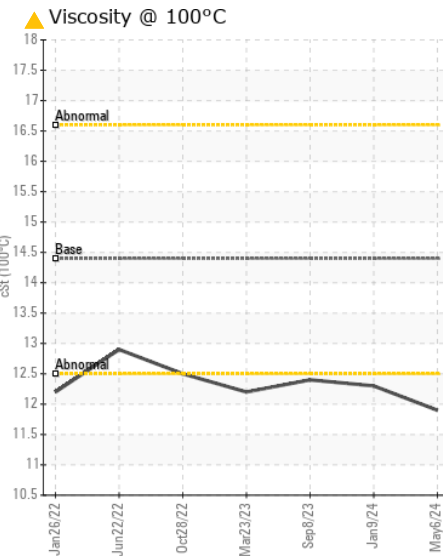
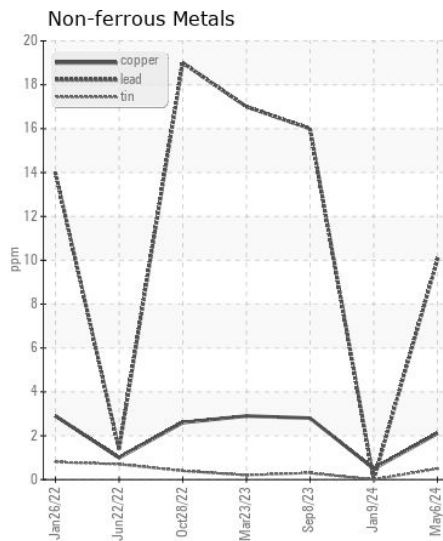
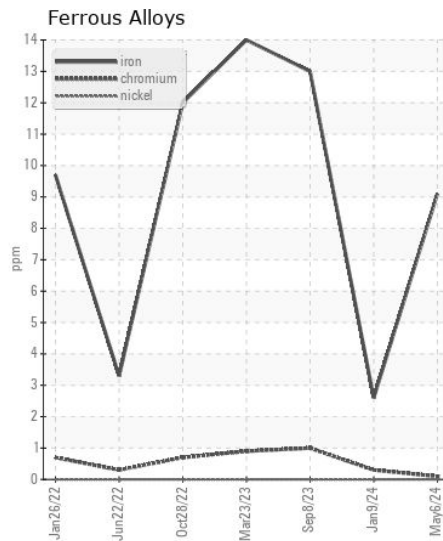
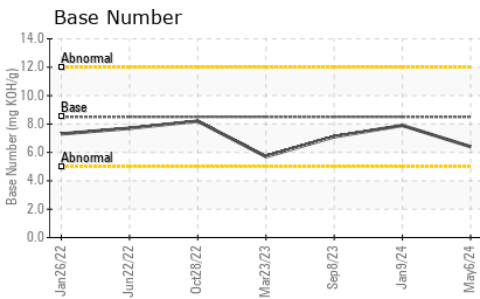
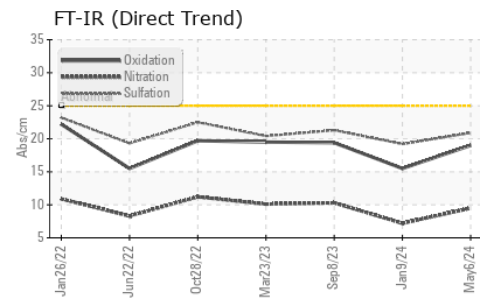
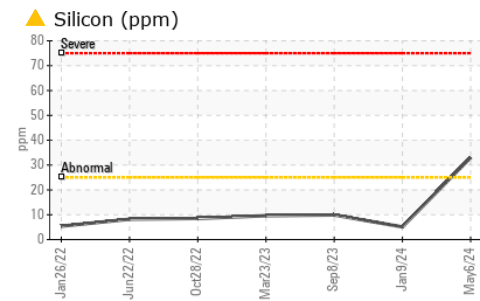
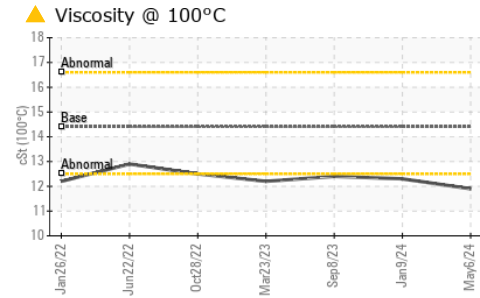
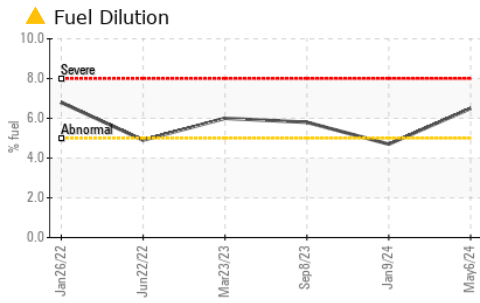
Elemental level of silicon (Si) above normal. There is a moderate amount of fuel present in the oil.

Silicon	ppm	ASTM D5185m	>25	▲ 33	5	10
Potassium	ppm	ASTM D5185m	>20	0	2	<1
Fuel	%	ASTM D3524	>5	▲ 6.5	▲ 4.7	▲ 5.8
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	9.5	7.2	10.3
Sulfation	Abs/.1mm	*ASTM D7415	>30	20.9	19.2	21.3
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

Fuel is present in the oil and is lowering the viscosity. The BN result indicates that there is suitable alkalinity remaining in the oil.

Sodium	ppm	ASTM D5185m	>158	5	1	4
Boron	ppm	ASTM D5185m	250	96	67	18
Barium	ppm	ASTM D5185m	10	0	3	2
Molybdenum	ppm	ASTM D5185m	100	66	64	71
Manganese	ppm	ASTM D5185m		2	0	<1
Magnesium	ppm	ASTM D5185m	450	384	335	389
Calcium	ppm	ASTM D5185m	3000	1509	1638	1731
Phosphorus	ppm	ASTM D5185m	1150	988	970	1034
Zinc	ppm	ASTM D5185m	1350	1134	1147	1246
Sulfur	ppm	ASTM D5185m	4250	3391	3710	3397
Oxidation	Abs/.1mm	*ASTM D7414	>25	19.0	15.5	19.4
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	6.4	7.9	7.1
Visc @ 100°C	cSt	ASTM D445	14.4	▲ 11.9	12.3	▲ 12.4



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : HRE0000155 **Received** : 31 May 2024
Lab Number : 06196193 **Tested** : 05 Jun 2024
Unique Number : 11058316 **Diagnosed** : 05 Jun 2024 - Don Baldrige
Test Package : FLEET (Additional Tests: FuelDilution, PercentFuel)

TOWN OF CHAPEL HILL
 6900 MILLHOUSE RD
 CHAPEL HILL, NC
 US 27516

Contact: Lisa DePasqua
 ldepasqua@townofchapelhill.org

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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F: