



TRAAP

Texas Refinery Advanced Analysis Program

OIL ANALYSIS REPORT

WEAR	ABNORMAL
CONTAMINATION	MARGINAL
FLUID CONDITION	NORMAL

Machine Id
INTERNATIONAL 49

Component
Diesel Engine

Fluid
TRC PRO-SPEC IV 15W40 (40 QTS)

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		TR06086726	TR05716027	TR05333767
Sample Date		Client Info		05 Feb 2024	13 Sep 2022	27 Jun 2021
Machine Age	hrs	Client Info		5220	4541	3982
Oil Age	hrs	Client Info		679	559	524
Filter Age	hrs	Client Info		679	559	524
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				ABNORMAL	ABNORMAL	ABNORMAL

WEAR

The lead level is abnormal. Valve wear is indicated.

Iron	ppm	ASTM D5185m	>100	53	42	34
Chromium	ppm	ASTM D5185m	>20	2	2	1
Nickel	ppm	ASTM D5185m	>4	▲ 12	1	<1
Titanium	ppm	ASTM D5185m		<1	<1	<1
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	6	7	5
Lead	ppm	ASTM D5185m	>40	▲ 73	▲ 47	▲ 40
Copper	ppm	ASTM D5185m	>330	4	3	4
Tin	ppm	ASTM D5185m	>15	5	3	2
Vanadium	ppm	ASTM D5185m		0	<1	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

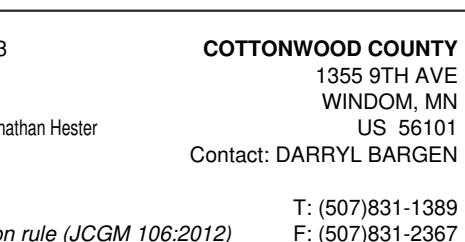
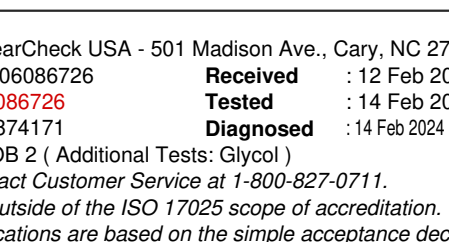
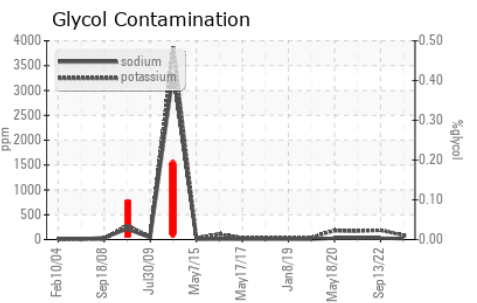
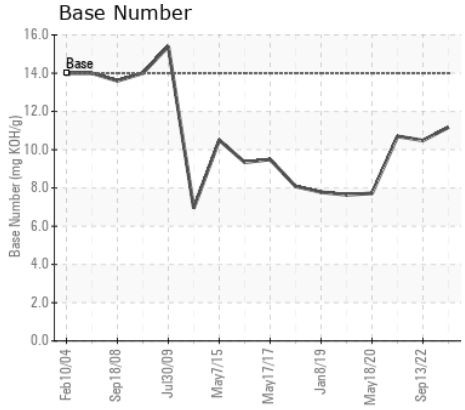
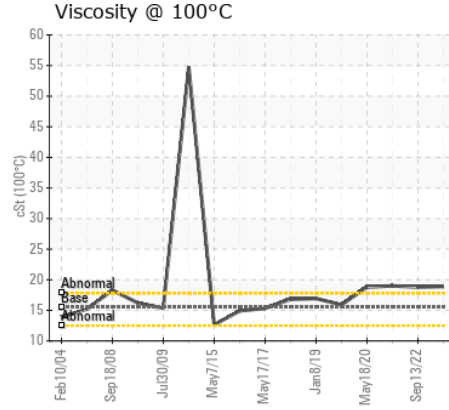
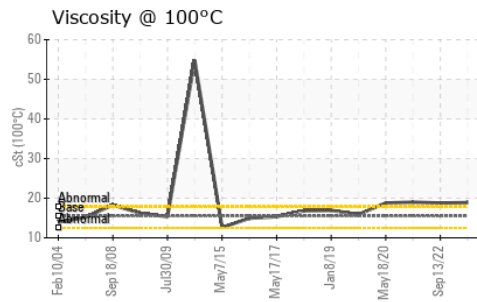
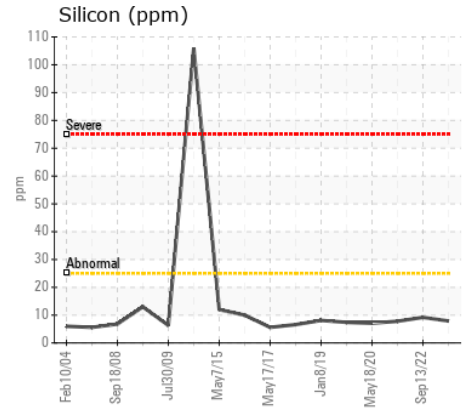
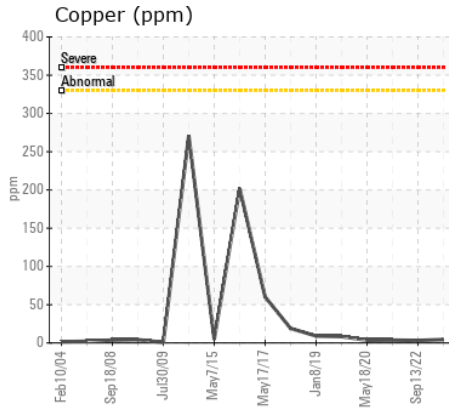
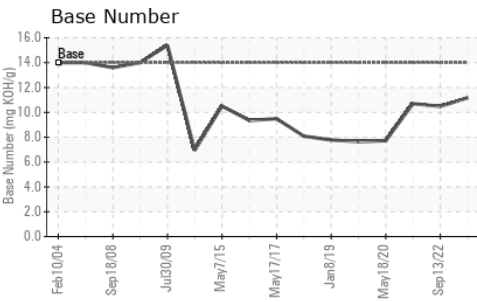
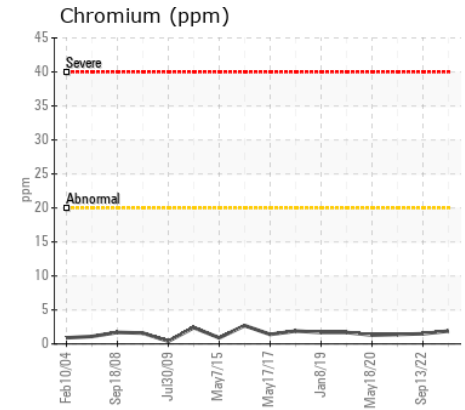
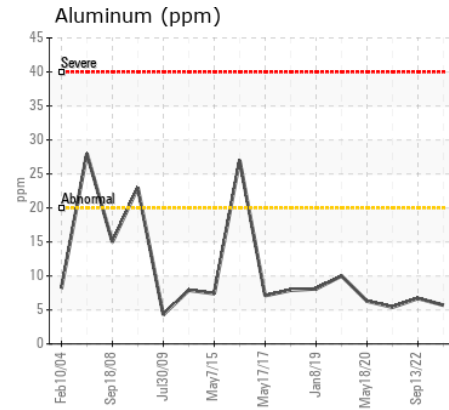
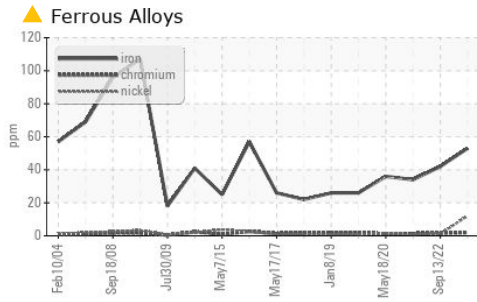
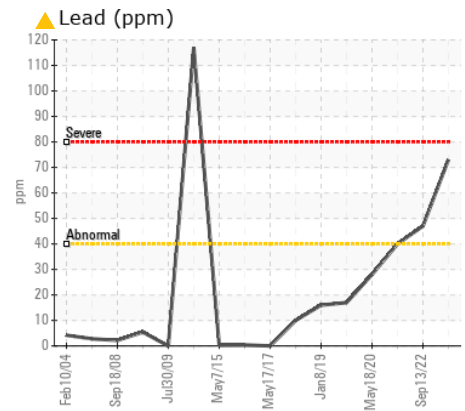
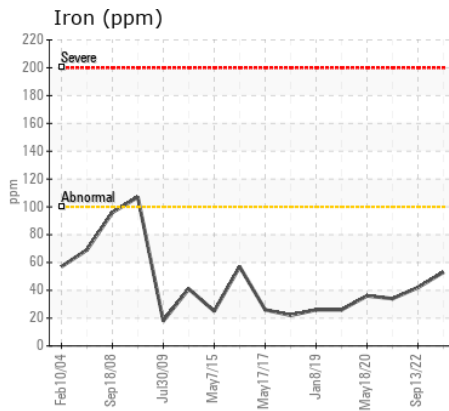
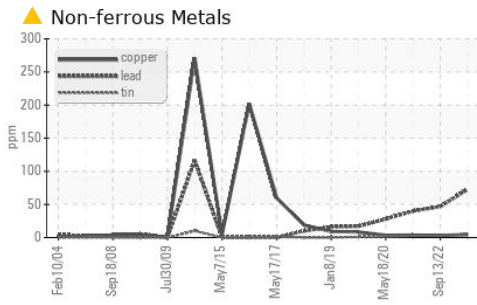
Sodium and/or potassium levels are high. Test for glycol is negative.

Silicon	ppm	ASTM D5185m	>25	8	9	8
Potassium	ppm	ASTM D5185m	>20	▲ 86	▲ 187	▲ 168
Fuel		WC Method	>2.0	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol	%	*ASTM D2982		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.7	0.6	0.5
Nitration	Abs/cm	*ASTM D7624	>20	20.1	21.6	21.9
Sulfation	Abs/.1mm	*ASTM D7415	>30	39.7	41.6	41.9
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		17	30	27
Boron	ppm	ASTM D5185m		<1	<1	7
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		14	26	23
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m		125	222	186
Calcium	ppm	ASTM D5185m	2300	5147	5097	5249
Phosphorus	ppm	ASTM D5185m		1135	1220	1206
Zinc	ppm	ASTM D5185m	1200	1406	1464	1399
Sulfur	ppm	ASTM D5185m		4710	5795	4240
Oxidation	Abs/.1mm	*ASTM D7414	>25	34.9	34.9	36
Base Number (BN)	mg KOH/g	ASTM D2896	14	11.17	10.48	10.7
Visc @ 100°C	cSt	ASTM D445	15.5	18.9	18.8	19.0



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : TR06086726
Lab Number : 06086726
Unique Number : 10874171
Test Package : MOB 2 (Additional Tests: Glycol)

COTTONWOOD COUNTY
 1355 9TH AVE
 WINDOM, MN
 US 56101
 Contact: DARRYL BARGEN

To discuss this sample report, contact Customer Service at 1-800-827-0711.

* - 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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