



TRAAP

Texas Refinery Advanced Analysis Program

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	SEVERE
FLUID CONDITION	ABNORMAL

Machine Id
1993 FREIGHTLINER 801

Component
Diesel Engine

Fluid
TRC PRO-SPEC III SYNTHETIC BLEND 15W40 (10 GAL)

RECOMMENDATION

We advise that you check for the source of the coolant leak. 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		TR03970823	TR00616799	---
Sample Date		Client Info		13 Apr 2016	18 Sep 2003	---
Machine Age	mls	Client Info		746989	0	---
Oil Age	mls	Client Info		4000	12000	---
Filter Age	mls	Client Info		4000	12000	---
Oil Changed		Client Info		Changed	Changed	---
Filter Changed		Client Info		Changed	N/A	---
Sample Status				SEVERE	NORMAL	---

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>120	34	30	---
Chromium	ppm	ASTM D5185m	>20	2	1	---
Nickel	ppm	ASTM D5185m	>2	0	<1	---
Titanium	ppm	ASTM D5185m	>2	0	0	---
Silver	ppm	ASTM D5185m	>2	0	0	---
Aluminum	ppm	ASTM D5185m	>20	5	2	---
Lead	ppm	ASTM D5185m	>40	28	2	---
Copper	ppm	ASTM D5185m	>30	3	8	---
Tin	ppm	ASTM D5185m	>15	<1	<1	---
Vanadium	ppm	ASTM D5185m		0	0	---
White Metal	scalar	*Visual	NONE	NONE	NONE	---
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	---

CONTAMINATION

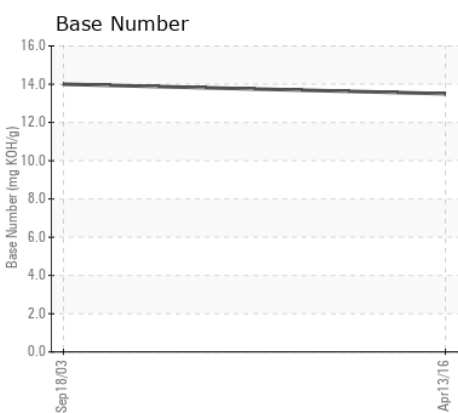
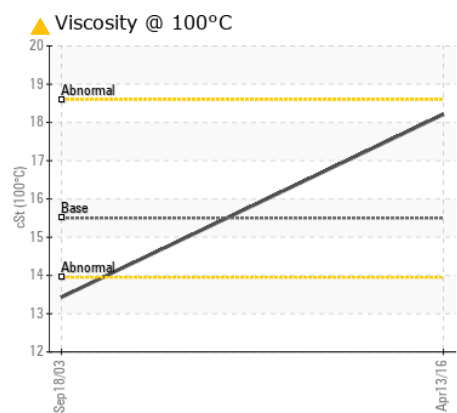
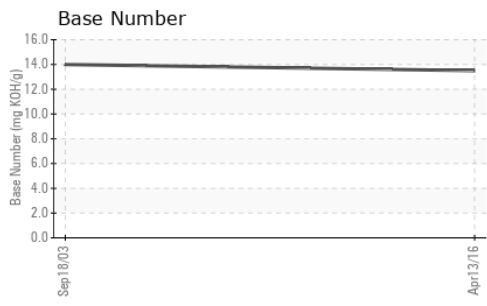
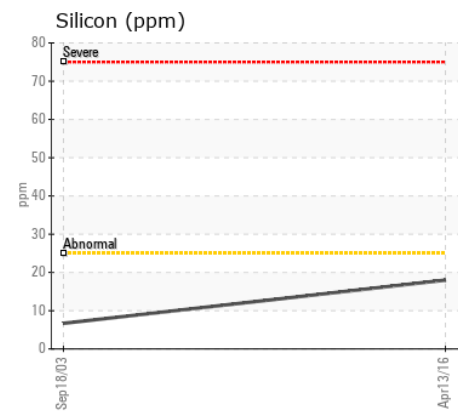
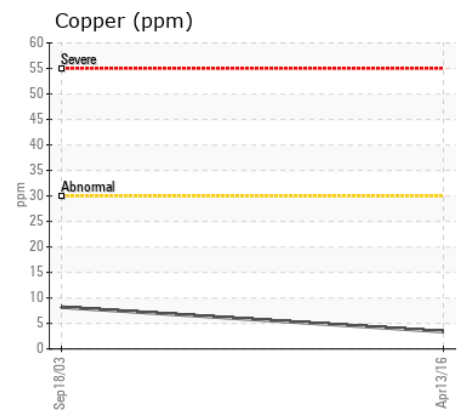
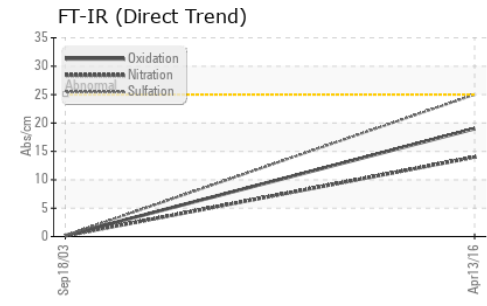
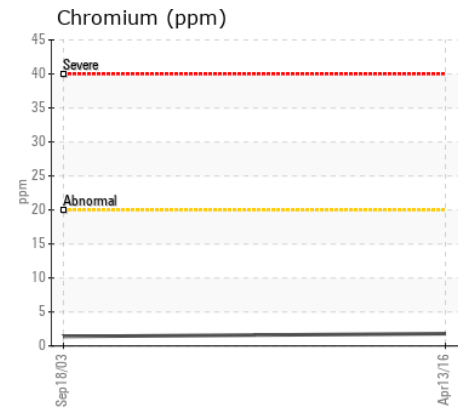
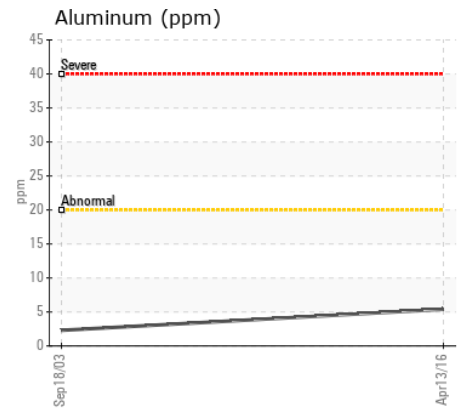
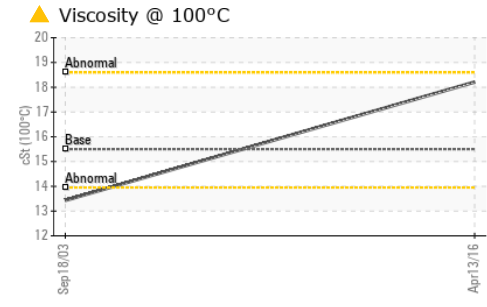
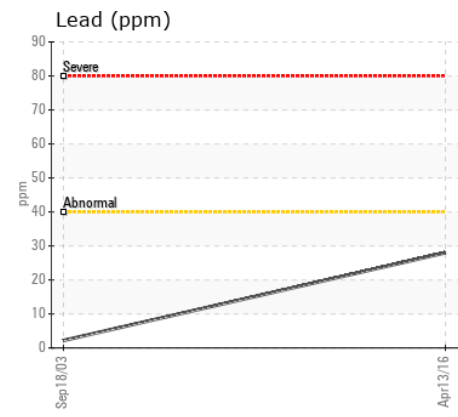
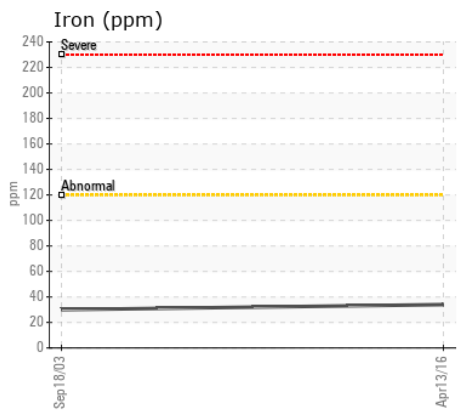
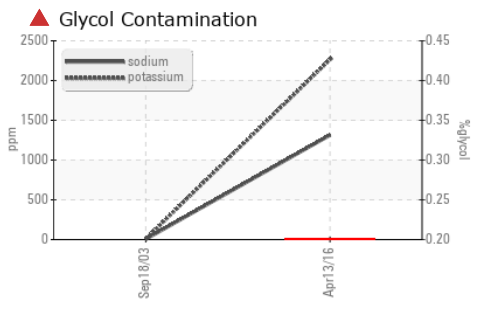
Sodium and/or potassium levels are high. There is a high concentration of glycol present in the oil.

Silicon	ppm	ASTM D5185m	>25	18	7	---
Potassium	ppm	ASTM D5185m	>20	▲ 2264	7	---
Fuel		WC Method	>3.0	<1.0	<1.0	---
Water		WC Method	>0.2	NEG	NEG	---
Glycol	%	*ASTM D2982		▲ 0.20	NEG	---
Soot %	%	*ASTM D7844	>3	2.2	0.7	---
Nitration	Abs/cm	*ASTM D7624		14.	0.13	---
Sulfation	Abs/.1mm	*ASTM D7415		25.	0.16	---
Silt	scalar	*Visual	NONE	NONE	NONE	---
Debris	scalar	*Visual	NONE	NONE	NONE	---
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	---
Appearance	scalar	*Visual	NORML	NORML	NORML	---
Odor	scalar	*Visual	NORML	NORML	NORML	---
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	---

FLUID CONDITION

The oil viscosity is higher than normal. The BN result indicates that there is suitable alkalinity remaining in the oil.

Sodium	ppm	ASTM D5185m		▲ 1313	4	---
Boron	ppm	ASTM D5185m		13	1	---
Barium	ppm	ASTM D5185m		<1	0	---
Molybdenum	ppm	ASTM D5185m		250	4	---
Manganese	ppm	ASTM D5185m		<1	1	---
Magnesium	ppm	ASTM D5185m		64	368	---
Calcium	ppm	ASTM D5185m		2769	5619	---
Phosphorus	ppm	ASTM D5185m		1050	1124	---
Zinc	ppm	ASTM D5185m		1182	1374	---
Sulfur	ppm	ASTM D5185m		4996	6519	---
Oxidation	Abs/.1mm	*ASTM D7414		19.	0.19	---
Base Number (BN)	mg KOH/g	ASTM D2896		13.5	14.0	---
Visc @ 100°C	cSt	ASTM D445	15.5	▲ 18.21	13.43	---



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : TR03970823 **Received** : 26 Apr 2016
Lab Number : 03970823 **Tested** : 28 Apr 2016
Unique Number : 7381288 **Diagnosed** : 28 Apr 2016 - Jonathan Hester
Test Package : MOB 2 (Additional Tests: Glycol)

ARROW CATTLE
 BOX 716
 TEXLINE, TX
 US 79087
 Contact: ELOY GONZALES

Certificate L2367
 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)