



TRAAP

Texas Refinery Advanced Analysis Program

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	ABNORMAL
FLUID CONDITION	ABNORMAL

Machine Id
1997 PETERBILT 97 PETE
 Component
Diesel Engine
 Fluid
TRC MOLY XL PRO-SPEC IV 15W40 (10 GAL)

RECOMMENDATION

We advise that you check for possible 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		TR05190412	TR05132498	TR04564977
Sample Date		Client Info		10 Feb 2021	17 Sep 2020	24 Sep 2018
Machine Age	mls	Client Info		424884	524085	520975
Oil Age	mls	Client Info		800	3110	3541
Filter Age	mls	Client Info		800	3110	3541
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				ABNORMAL	SEVERE	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	3	8	9
Chromium	ppm	ASTM D5185m	>20	<1	1	<1
Nickel	ppm	ASTM D5185m	>2	0	0	0
Titanium	ppm	ASTM D5185m	>2	<1	0	0
Silver	ppm	ASTM D5185m	>2	<1	<1	0
Aluminum	ppm	ASTM D5185m	>25	1	0	4
Lead	ppm	ASTM D5185m	>40	1	8	1
Copper	ppm	ASTM D5185m	>330	38	▲ 341	27
Tin	ppm	ASTM D5185m	>15	<1	<1	<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

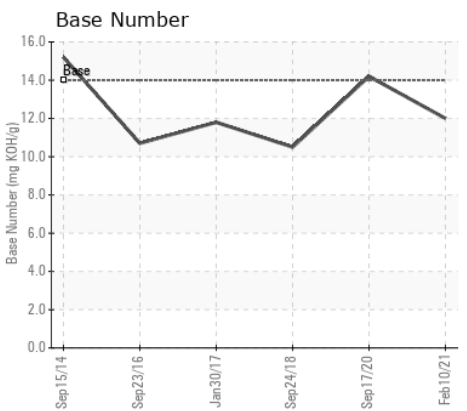
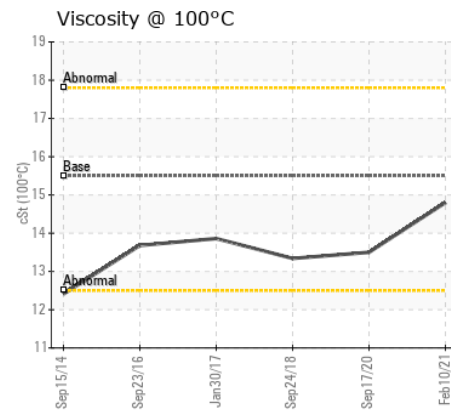
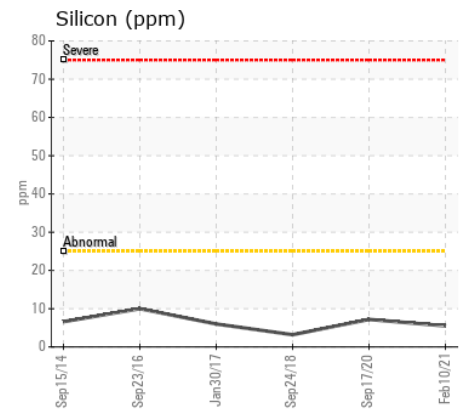
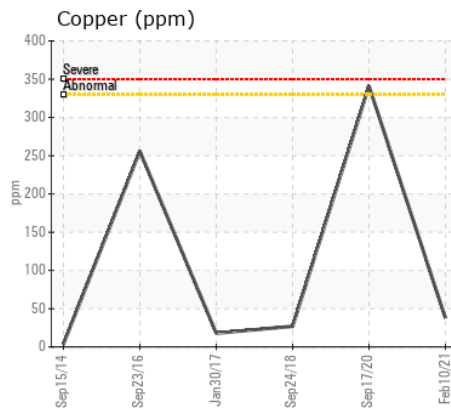
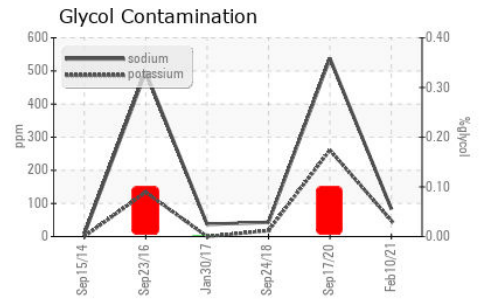
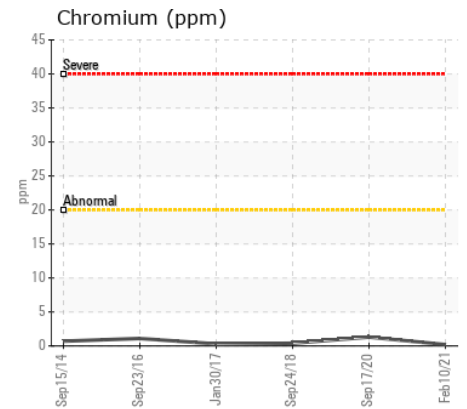
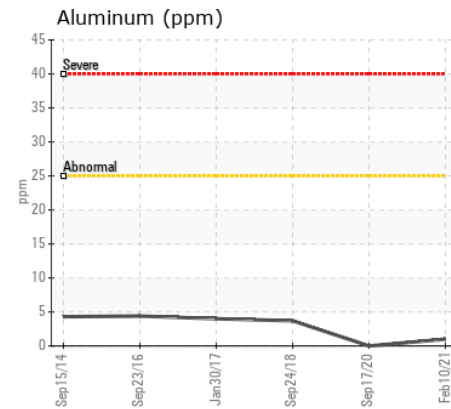
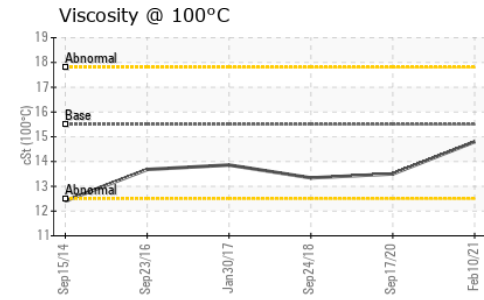
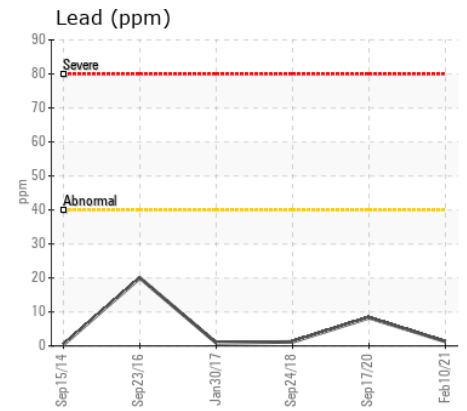
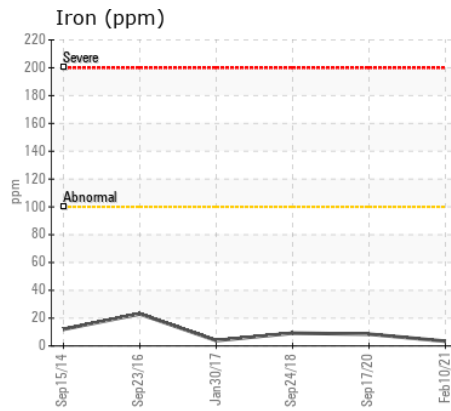
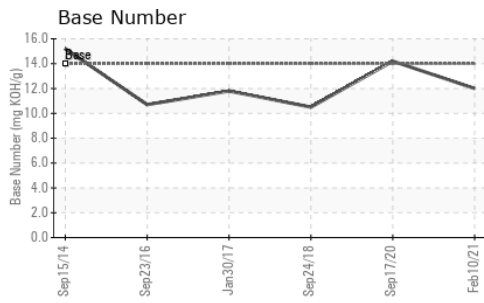
Sodium and/or potassium levels remain high.

Silicon	ppm	ASTM D5185m	>25	6	7	3
Potassium	ppm	ASTM D5185m	>20	▲ 48	▲ 261	18
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol	%	*ASTM D2982		NEG	0.10	NEG
Soot %	%	*ASTM D7844	>3	0.1	0.1	0.3
Nitration	Abs/cm	*ASTM D7624	>20	8	13.6	8.7
Sulfation	Abs/.1mm	*ASTM D7415	>30	17.4	18.9	18.8
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		▲ 83	▲ 538	43
Boron	ppm	ASTM D5185m		4	7	8
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		116	160	166
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m		76	765	773
Calcium	ppm	ASTM D5185m	1300	3587	1456	1660
Phosphorus	ppm	ASTM D5185m		878	1163	971
Zinc	ppm	ASTM D5185m	1300	924	1088	1118
Sulfur	ppm	ASTM D5185m		3558	3264	3556
Oxidation	Abs/.1mm	*ASTM D7414	>25	10.4	15.4	16.2
Base Number (BN)	mg KOH/g	ASTM D2896	14	12.0	14.2	10.5
Visc @ 100°C	cSt	ASTM D445	15.5	14.8	13.5	13.34



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513

Sample No. : TR05190412

Lab Number : 05190412

Unique Number : 9380710

Test Package : MOB 2

Received : 25 Feb 2021

Tested : 01 Mar 2021

Diagnosed : 01 Mar 2021 - Jonathan Hester

PHIL HARDER

57803 350TH STREET

MOUNTAIN LAKE, MN

US 56159

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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)