



TRAAP

Texas Refinery Advanced Analysis Program

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	MARGINAL
FLUID CONDITION	NORMAL

Machine Id
GRASSHOPPER LM

Component
Gasoline Engine

Fluid
TRC MOLY XL PRO-SPEC IV 10W30 (2 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		TR04564985	TR04139963	---
Sample Date		Client Info		14 May 2018	22 Apr 2016	---
Machine Age	hrs	Client Info		308	182	---
Oil Age	hrs	Client Info		126	81	---
Filter Age	hrs	Client Info		126	81	---
Oil Changed		Client Info		Changed	Changed	---
Filter Changed		Client Info		Changed	Changed	---
Sample Status				MARGINAL	ATTENTION	---

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>150	46	282	---
Chromium	ppm	ASTM D5185m	>20	<1	3	---
Nickel	ppm	ASTM D5185m	>5	2	2	---
Titanium	ppm	ASTM D5185m		0	0	---
Silver	ppm	ASTM D5185m	>2	0	0	---
Aluminum	ppm	ASTM D5185m	>40	6	20	---
Lead	ppm	ASTM D5185m	>50	<1	21	---
Copper	ppm	ASTM D5185m	>155	9	12	---
Tin	ppm	ASTM D5185m	>10	1	10	---
Vanadium	ppm	ASTM D5185m		0	0	---
White Metal	scalar	*Visual	NONE	NONE	NONE	---
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	---

CONTAMINATION

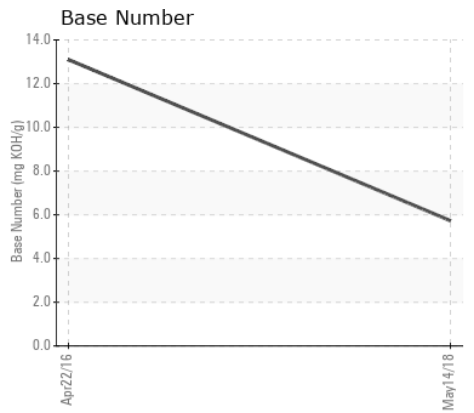
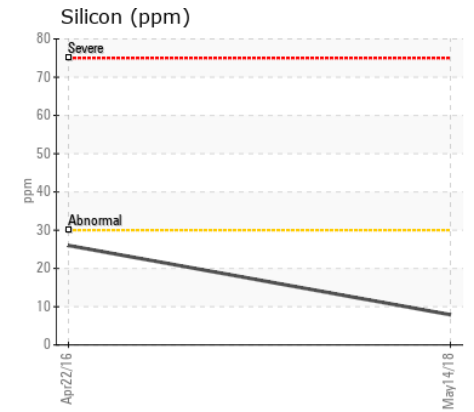
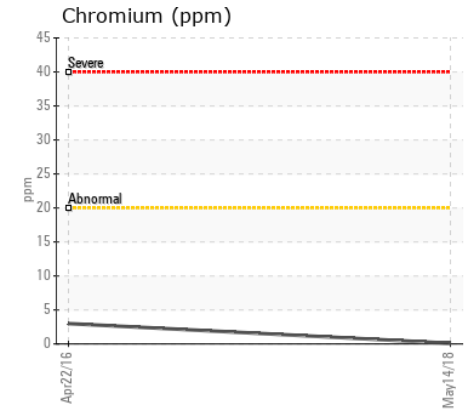
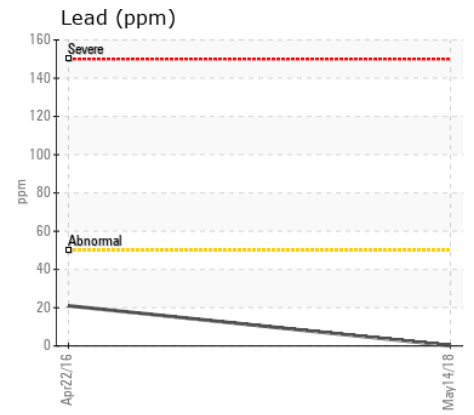
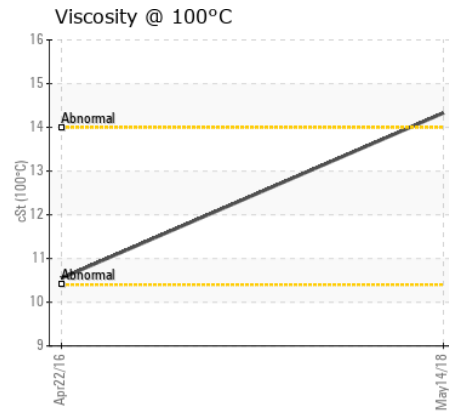
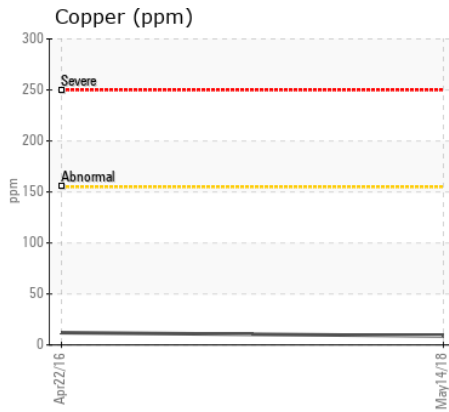
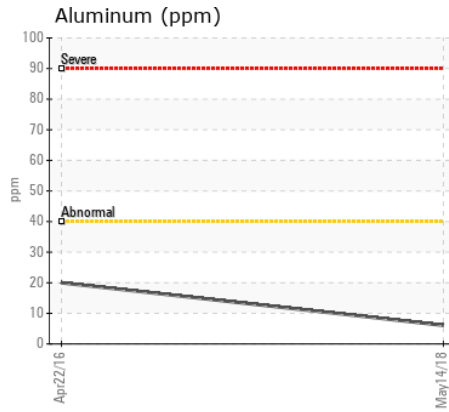
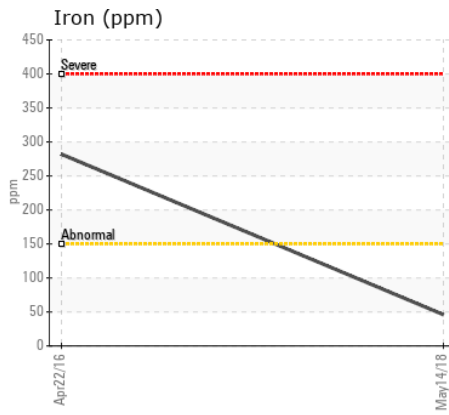
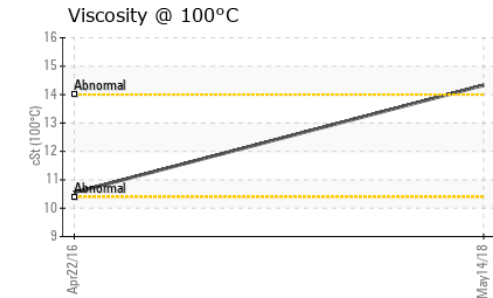
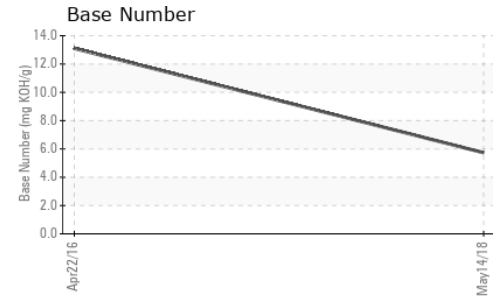
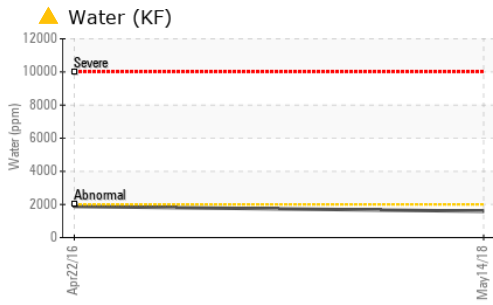
There is a trace of moisture present in the oil.

Silicon	ppm	ASTM D5185m	>30	8	26	---
Potassium	ppm	ASTM D5185m	>20	3	▲ 119	---
Fuel		WC Method	>4.0	<1.0	<1.0	---
Water	%	ASTM D6304	>0.2	▲ 0.159	▲ 0.188	---
ppm Water	ppm	ASTM D6304	>2000	▲ 1590	▲ 1880	---
Glycol		WC Method		NEG	0.0	---
Soot %	%	*ASTM D7844		0.1	0	---
Nitration	Abs/cm	*ASTM D7624	>20	17.2	16.	---
Sulfation	Abs/.1mm	*ASTM D7415	>30	33.1	27.	---
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 BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m	>400	8	▲ 106	---
Boron	ppm	ASTM D5185m		4	40	---
Barium	ppm	ASTM D5185m		<1	0	---
Molybdenum	ppm	ASTM D5185m		146	248	---
Manganese	ppm	ASTM D5185m		2	7	---
Magnesium	ppm	ASTM D5185m		702	24	---
Calcium	ppm	ASTM D5185m		1098	4768	---
Phosphorus	ppm	ASTM D5185m		703	1218	---
Zinc	ppm	ASTM D5185m		986	1328	---
Sulfur	ppm	ASTM D5185m		2642	4718	---
Oxidation	Abs/.1mm	*ASTM D7414	>25	40.7	21.	---
Base Number (BN)	mg KOH/g	ASTM D2896		5.73	13.1	---
Visc @ 100°C	cSt	ASTM D445		14.33	10.55	---



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : TR04564985 **Received** : 04 Oct 2018
Lab Number : 04564985 **Tested** : 05 Oct 2018
Unique Number : 8353892 **Diagnosed** : 05 Oct 2018 - Don Baldrige
Test Package : MOB 2 (Additional Tests: KF)

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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