



TRAAP

Texas Refinery Advanced Analysis Program

OIL ANALYSIS REPORT

WEAR	ATTENTION
CONTAMINATION	ABNORMAL
FLUID CONDITION	NORMAL

Machine Id  
**2009 IHC BUS 9 - 2009 IHC**

Component  
**Front Diesel Engine**

Fluid  
**TRC MOLY XL PRO-SPEC SYN BLEND 15W40 (25 QTS)**

**RECOMMENDATION**

We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>TR06100299</b>	TR05896976	TR05543432
Sample Date		Client Info		<b>09 Feb 2024</b>	07 Jun 2023	04 May 2022
Machine Age	mls	Client Info		<b>151063</b>	144780	139559
Oil Age	mls	Client Info		<b>27969</b>	21686	16465
Filter Age	mls	Client Info		<b>0</b>	0	0
Oil Changed		Client Info		<b>N/A</b>	N/A	N/A
Filter Changed		Client Info		<b>N/A</b>	N/A	N/A
Sample Status				<b>ABNORMAL</b>	ABNORMAL	ABNORMAL

**WEAR**

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>75	<b>50</b>	25	15
Chromium	ppm	ASTM D5185m	>4	<b>&lt;1</b>	<1	<1
Nickel	ppm	ASTM D5185m	>4	<b>&lt;1</b>	0	0
Titanium	ppm	ASTM D5185m		<b>&lt;1</b>	<1	<1
Silver	ppm	ASTM D5185m	>3	<b>&lt;1</b>	0	<1
Aluminum	ppm	ASTM D5185m	>15	<b>10</b>	6	4
Lead	ppm	ASTM D5185m	>15	<b>3</b>	2	<1
Copper	ppm	ASTM D5185m	>30	<b>10</b>	6	4
Tin	ppm	ASTM D5185m	>4	<b>1</b>	<1	<1
Vanadium	ppm	ASTM D5185m		<b>0</b>	<1	0
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE

**CONTAMINATION**

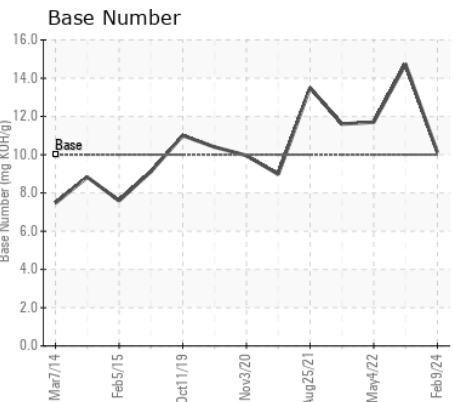
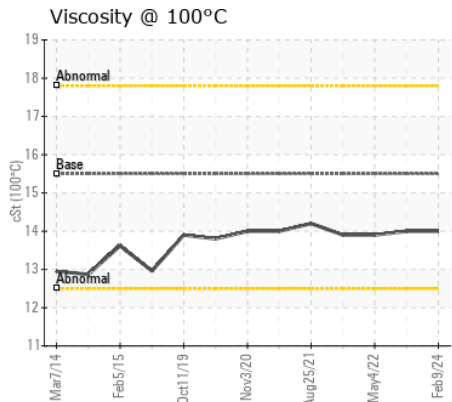
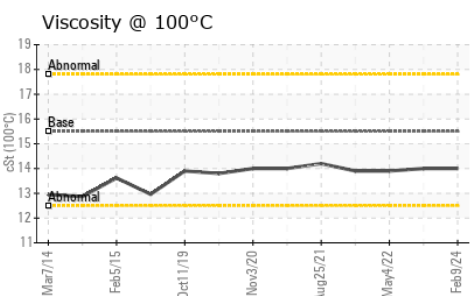
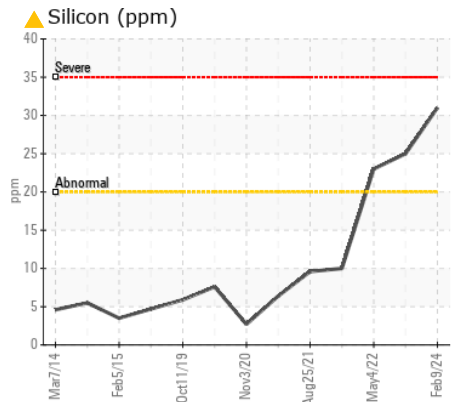
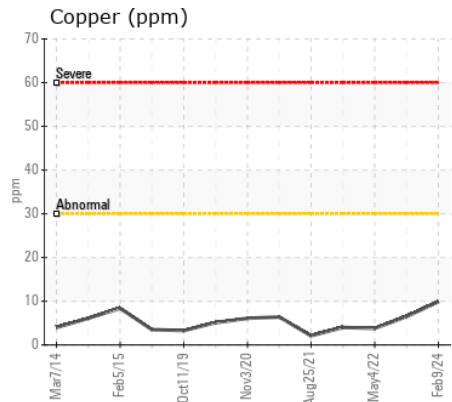
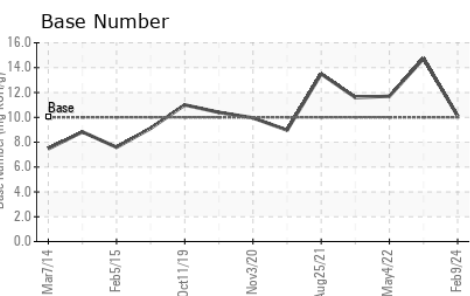
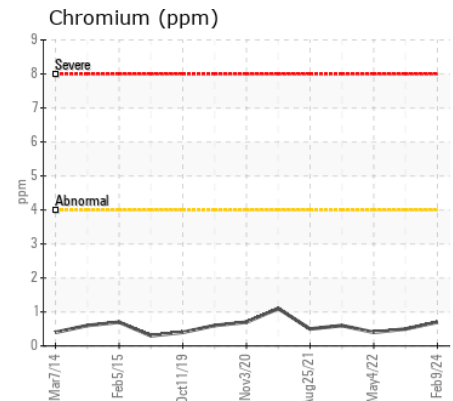
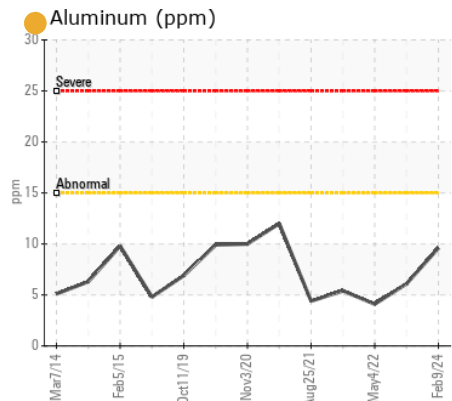
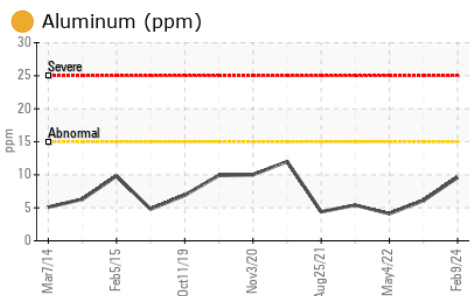
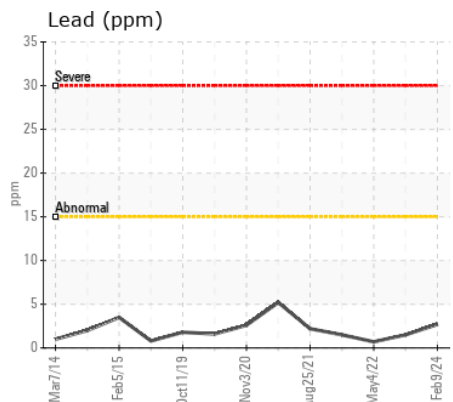
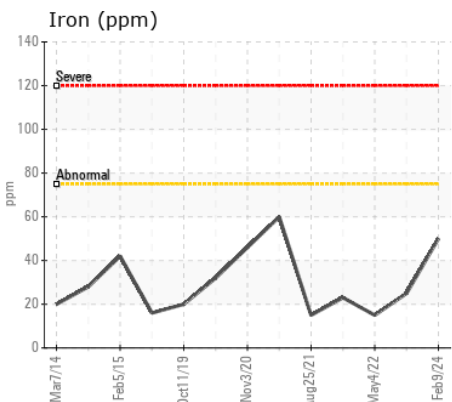
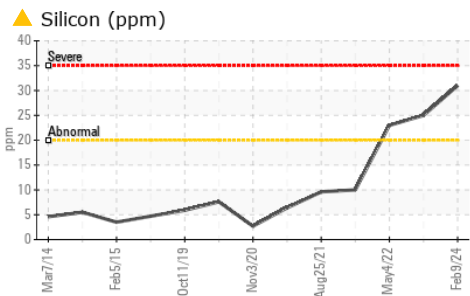
Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress.

Silicon	ppm	ASTM D5185m	>20	<b>▲ 31</b>	▲ 25	▲ 23
Potassium	ppm	ASTM D5185m	>20	<b>5</b>	6	<1
Fuel		WC Method	>2.0	<b>&lt;1.0</b>	<1.0	<1.0
Water		WC Method	>0.2	<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844	>3	<b>0.6</b>	0.4	0.2
Nitration	Abs/cm	*ASTM D7624	>20	<b>11.2</b>	10.0	9.5
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>23.8</b>	21.1	19.5
Silt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Debris	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Appearance	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Odor	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	<b>NEG</b>	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		<b>13</b>	9	5
Boron	ppm	ASTM D5185m		<b>5</b>	0	5
Barium	ppm	ASTM D5185m		<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m		<b>119</b>	117	115
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	<1	<1
Magnesium	ppm	ASTM D5185m		<b>22</b>	22	19
Calcium	ppm	ASTM D5185m	2300	<b>4189</b>	4191	4430
Phosphorus	ppm	ASTM D5185m		<b>870</b>	880	946
Zinc	ppm	ASTM D5185m	1200	<b>1052</b>	1038	1072
Sulfur	ppm	ASTM D5185m		<b>4097</b>	4905	4039
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>15.3</b>	13.5	11.0
Base Number (BN)	mg KOH/g	ASTM D2896	10	<b>10.12</b>	14.73	11.7
Visc @ 100°C	cSt	ASTM D445	15.5	<b>14.0</b>	14.0	13.9



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : TR06100299  
**Lab Number** : 06100299  
**Unique Number** : 10898529  
**Test Package** : MOB 2

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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)