



TRAAP

Texas Refinery Advanced Analysis Program

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	MARGINAL
FLUID CONDITION	ATTENTION

Machine Id
TAKEUCHI 001551

Component
Diesel Engine

Fluid
TRC MOLY XL PRO-SPEC IV HD SYN 5W40 (14 QTS)

RECOMMENDATION

No corrective action is recommended at this time. Confirm the source of the lubricant being utilized for top-up/fill. Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		TR06048446	TR05659156	TR04956723
Sample Date		Client Info		26 Dec 2023	04 Oct 2022	14 Apr 2020
Machine Age	hrs	Client Info		2135	1845	1313
Oil Age	hrs	Client Info		290	532	302
Filter Age	hrs	Client Info		290	532	302
Oil Changed		Client Info		Not Changd	Changed	Changed
Filter Changed		Client Info		Not Changd	Changed	Changed
Sample Status				ATTENTION	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	9	18	15
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	<1	<1	<1
Titanium	ppm	ASTM D5185m		0	0	<1
Silver	ppm	ASTM D5185m	>3	<1	0	0
Aluminum	ppm	ASTM D5185m	>20	3	<1	3
Lead	ppm	ASTM D5185m	>40	<1	20	<1
Copper	ppm	ASTM D5185m	>330	13	202	218
Tin	ppm	ASTM D5185m	>15	<1	<1	0
Vanadium	ppm	ASTM D5185m		<1	<1	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

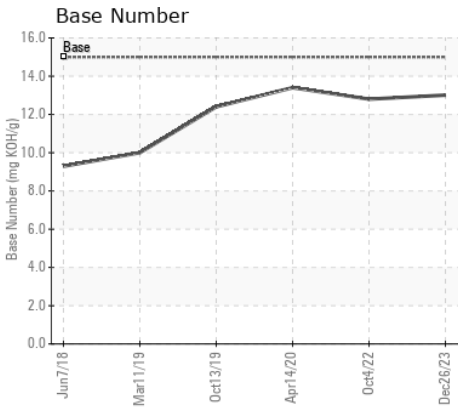
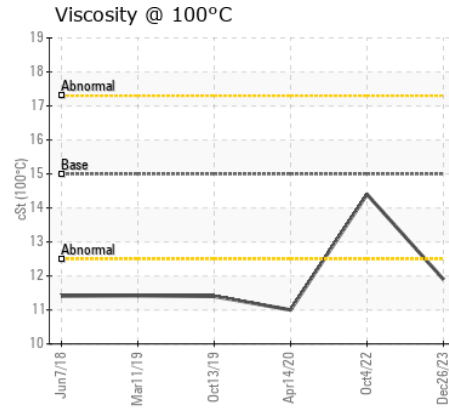
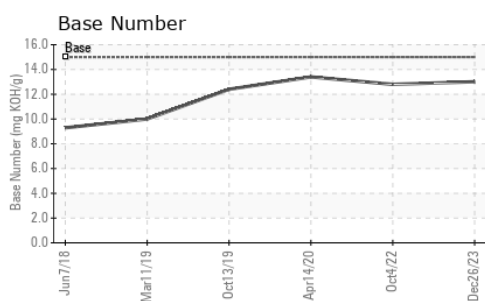
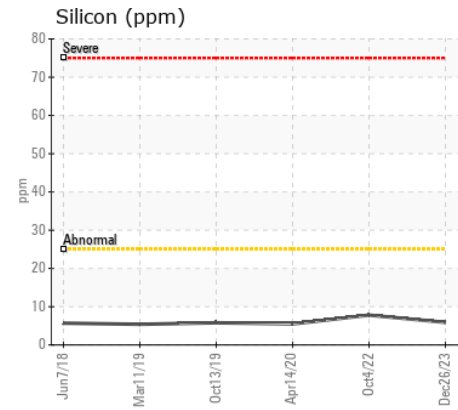
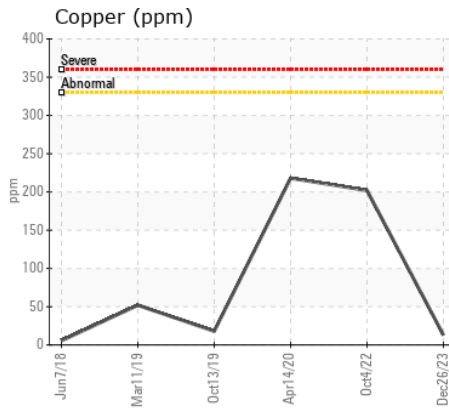
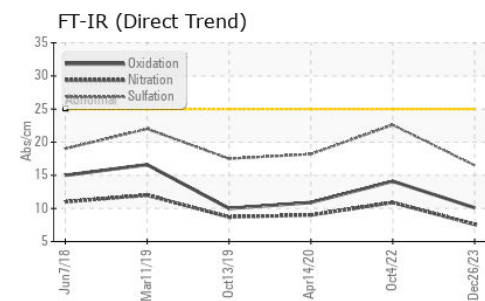
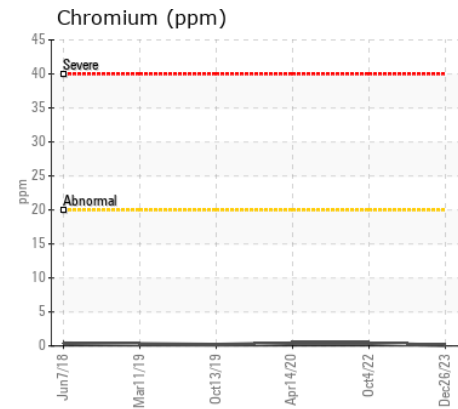
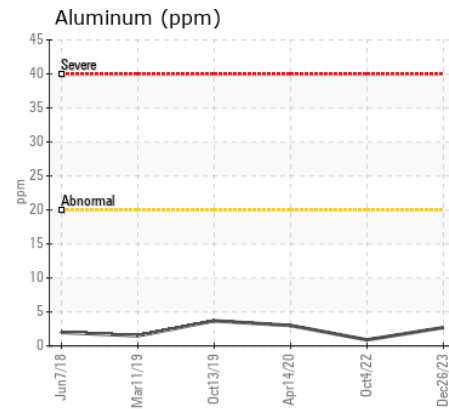
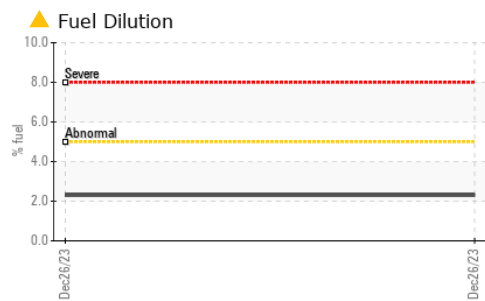
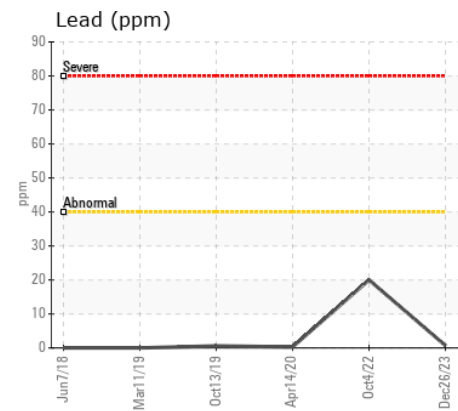
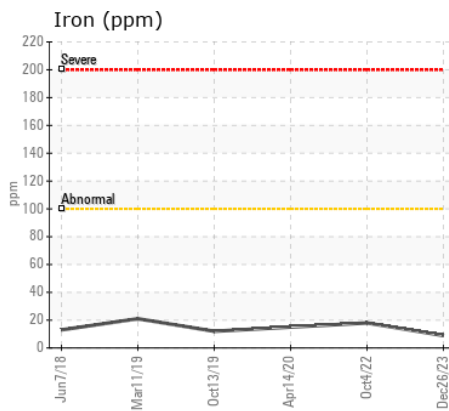
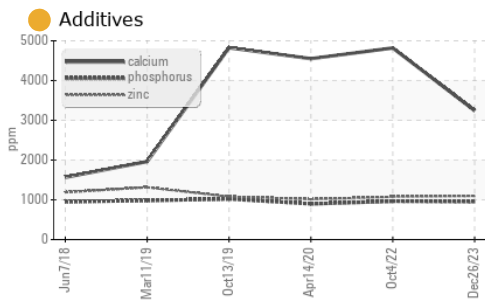
Light fuel dilution occurring. No other contaminants were detected in the oil.

Silicon	ppm	ASTM D5185m	>25	6	8	6
Potassium	ppm	ASTM D5185m	>20	3	<1	5
Fuel	%	ASTM D3524	>5	▲ 2.3	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.2	0.2	0.2
Nitration	Abs/cm	*ASTM D7624	>20	7.6	10.9	9
Sulfation	Abs/.1mm	*ASTM D7415	>30	16.5	22.6	18.2
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

Additive levels indicate the addition of a different brand, or type of oil. 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		3	2	2
Boron	ppm	ASTM D5185m		● 44	0	3
Barium	ppm	ASTM D5185m		0	0	<1
Molybdenum	ppm	ASTM D5185m		105	7	114
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m		● 203	16	59
Calcium	ppm	ASTM D5185m	4500	● 3244	4820	4550
Phosphorus	ppm	ASTM D5185m		950	963	898
Zinc	ppm	ASTM D5185m	1200	1097	1076	1014
Sulfur	ppm	ASTM D5185m		3695	4756	3636
Oxidation	Abs/.1mm	*ASTM D7414	>25	10.1	14.1	10.9
Base Number (BN)	mg KOH/g	ASTM D2896	15	13.01	12.8	13.4
Visc @ 100°C	cSt	ASTM D445	15	11.9	14.4	11.0



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : TR06048446 **Received** : 29 Dec 2023
Lab Number : 06048446 **Tested** : 03 Jan 2024
Unique Number : 10809054 **Diagnosed** : 03 Jan 2024 - Wes Davis
Test Package : MOB 2 (Additional Tests: FuelDilution, PercentFuel)

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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)