



TRAAP

Texas Refinery Advanced Analysis Program

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id
CATERPILLAR 160H MOTOR GRADER-160H

Component
Diesel Engine

Fluid
TRC MOLY XL PRO-SPEC III SYNTHETIC15W40 (8 GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		TR06191245	TR06155288	TR05541482
Sample Date		Client Info		09 May 2024	11 Apr 2024	26 Apr 2022
Machine Age	hrs	Client Info		2859	15806	15426
Oil Age	hrs	Client Info		13	380	375
Filter Age	hrs	Client Info		13	380	375
Oil Changed		Client Info		Not Changd	Changed	Changed
Filter Changed		Client Info		Not Changd	Changed	Changed
Sample Status				NORMAL	ABNORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	6	32	29
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	<1	0
Titanium	ppm	ASTM D5185m	>2	<1	<1	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>25	4	4	3
Lead	ppm	ASTM D5185m	>40	<1	2	2
Copper	ppm	ASTM D5185m	>330	3	21	22
Tin	ppm	ASTM D5185m	>15	<1	<1	<1
Vanadium	ppm	ASTM D5185m		<1	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

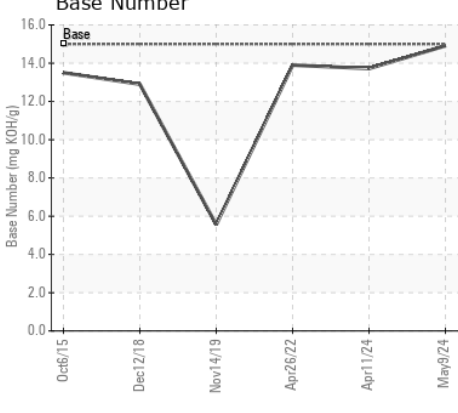
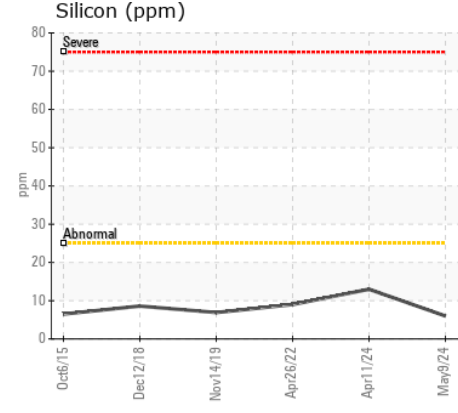
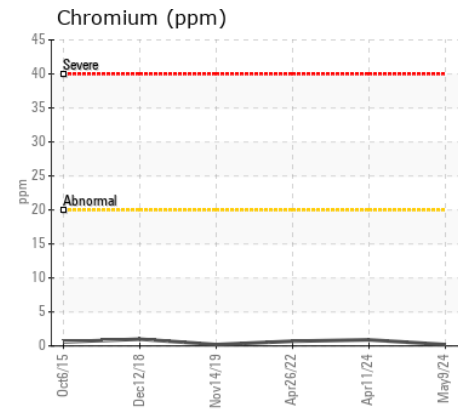
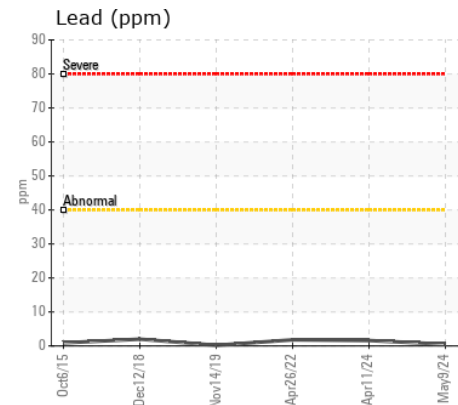
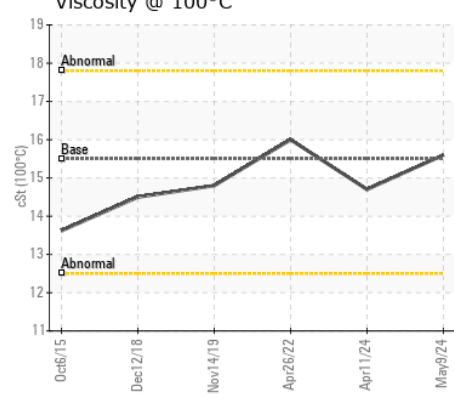
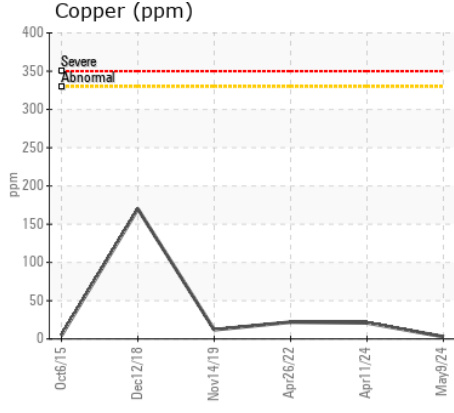
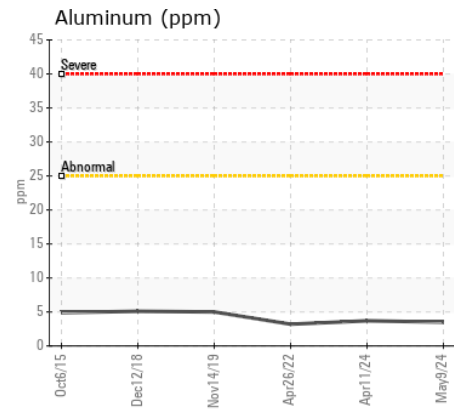
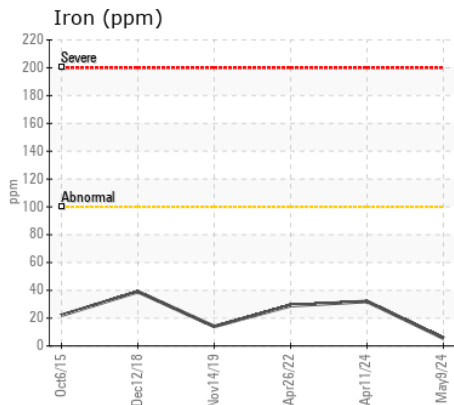
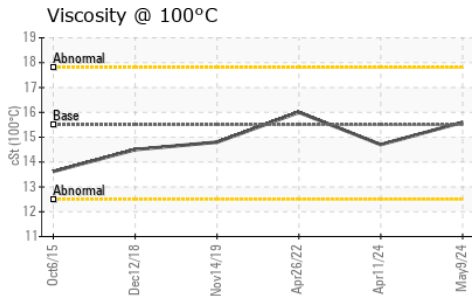
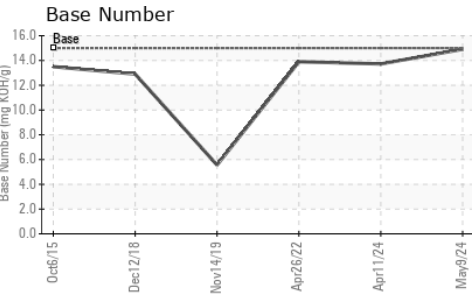
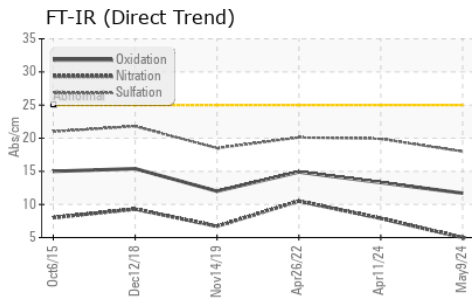
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>25	6	13	9
Potassium	ppm	ASTM D5185m	>20	2	▲ 57	49
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.1	0.4	0.4
Nitration	Abs/cm	*ASTM D7624	>20	5.0	7.9	10.5
Sulfation	Abs/.1mm	*ASTM D7415	>30	18.0	19.9	20.1
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. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m		2	29	28
Boron	ppm	ASTM D5185m		214	184	195
Barium	ppm	ASTM D5185m		1	0	0
Molybdenum	ppm	ASTM D5185m		181	217	216
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m		419	413	477
Calcium	ppm	ASTM D5185m	4500	3639	3916	4251
Phosphorus	ppm	ASTM D5185m		962	823	829
Zinc	ppm	ASTM D5185m	1400	1036	985	1053
Sulfur	ppm	ASTM D5185m		4382	3714	3291
Oxidation	Abs/.1mm	*ASTM D7414	>25	11.7	13.3	14.9
Base Number (BN)	mg KOH/g	ASTM D2896	15	14.91	13.72	13.9
Visc @ 100°C	cSt	ASTM D445	15.5	15.6	14.7	16.0



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : TR06191245
Lab Number : 06191245
Unique Number : 11047997
Test Package : MOB 2
Received : 24 May 2024
Tested : 31 May 2024
Diagnosed : 31 May 2024 - Sean Felton

NOLL CONSTRUCTION
 BOX 152
 GOLVA, ND
 US 58632
 Contact: KELLY ZIETLOW

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)