



TRAAP

Texas Refinery Advanced Analysis Program

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id
CATERPILLAR 328D-LCR 567811 (S/N RMX00229)

Component
Rear Diesel Engine

Fluid
TRC PRO-SPEC III SAE 10W30 (28 LTR)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		TR02606887	TR02364469	TR02258939
Sample Date		Client Info		19 Dec 2023	05 May 2020	17 Dec 2018
Machine Age	hrs	Client Info		7054	5788	5276
Oil Age	hrs	Client Info		924	1337	825
Filter Age	hrs	Client Info		924	513	825
Oil Changed		Client Info		Not Changed	Not Changed	Not Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185(m)	>100	29	23	13
Chromium	ppm	ASTM D5185(m)	>20	<1	1	<1
Nickel	ppm	ASTM D5185(m)	>2	<1	<1	<1
Titanium	ppm	ASTM D5185(m)	>2	0	<1	0
Silver	ppm	ASTM D5185(m)	>2	<1	<1	0
Aluminum	ppm	ASTM D5185(m)	>25	4	2	2
Lead	ppm	ASTM D5185(m)	>40	3	8	4
Copper	ppm	ASTM D5185(m)	>330	20	160	135
Tin	ppm	ASTM D5185(m)	>15	<1	<1	0
Vanadium	ppm	ASTM D5185(m)		0	0	0

CONTAMINATION

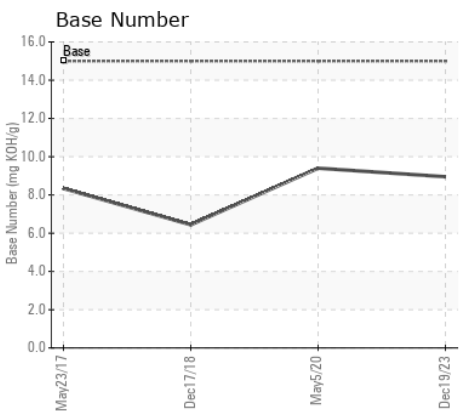
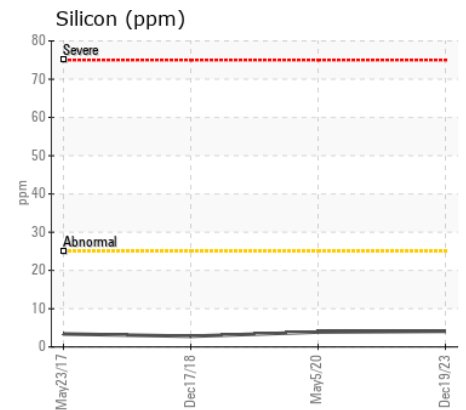
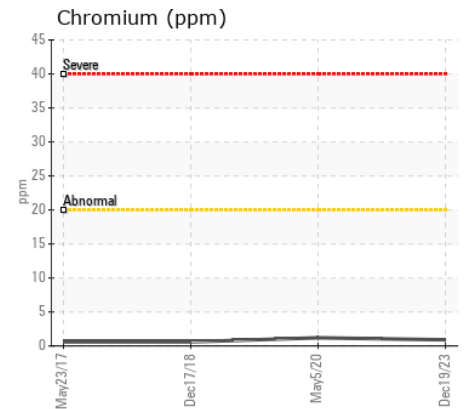
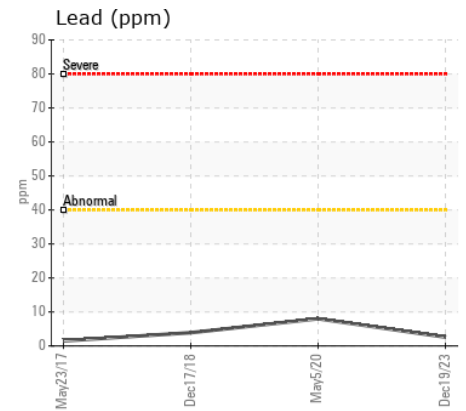
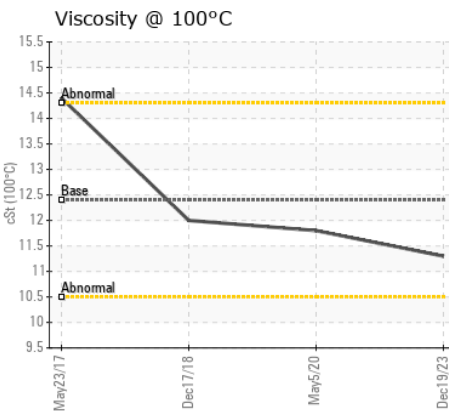
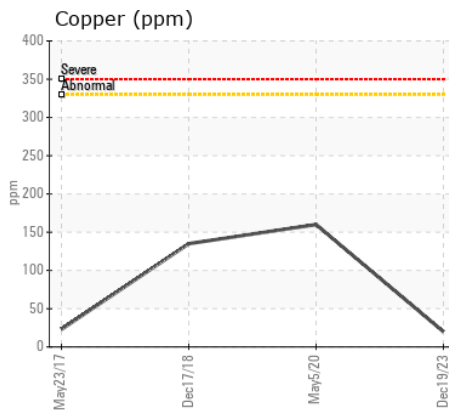
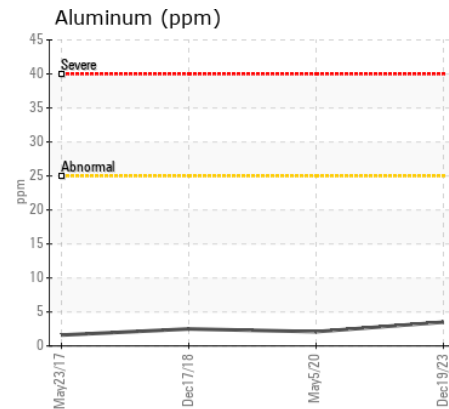
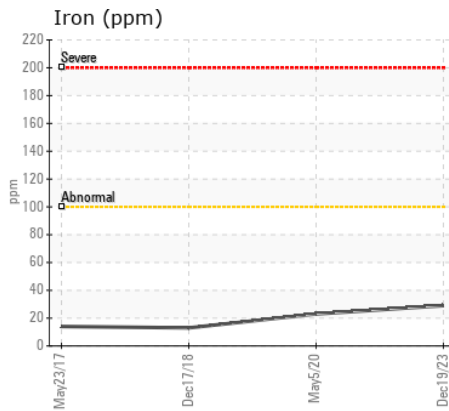
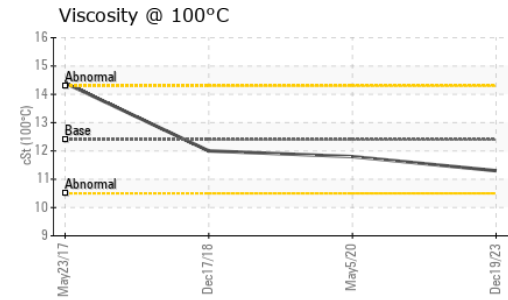
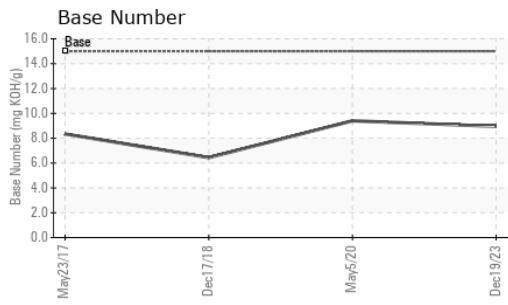
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185(m)	>25	4	4	3
Potassium	ppm	ASTM D5185(m)	>20	2	3	3
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	0.4	0.3	0.2
Nitration	Abs/cm	ASTM D7624*	>20	11.2	12.6	11.9
Sulfation	Abs/.1mm	ASTM D7415*	>30	22.6	28.4	20.9
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 D5185(m)		3	3	2
Boron	ppm	ASTM D5185(m)		36	3	5
Barium	ppm	ASTM D5185(m)		0	0	0
Molybdenum	ppm	ASTM D5185(m)		97	53	27
Manganese	ppm	ASTM D5185(m)		0	<1	<1
Magnesium	ppm	ASTM D5185(m)		148	896	514
Calcium	ppm	ASTM D5185(m)	4500	2293	1594	2051
Phosphorus	ppm	ASTM D5185(m)		1104	1158	1125
Zinc	ppm	ASTM D5185(m)	1400	1325	1412	1317
Sulfur	ppm	ASTM D5185(m)		3375	2713	3182
Oxidation	Abs/.1mm	ASTM D7414*	>25	19.2	20.3	17.4
Base Number (BN)	mg KOH/g	ASTM D2896*	15	8.95	9.40	6.44
Visc @ 100°C	cSt	ASTM D7279(m)	12.4	11.3	11.8	12.0



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : TR02606887
Lab Number : 02606887
Unique Number : 5707973
Test Package : MOB 2

WILCO CONTRACTORS
 3031 ARTHUR ST
 ROSSLYN, ON
 CA P7K 0P2
 Contact: David Cramer

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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