



TRAAP

Texas Refinery Advanced Analysis Program

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	ABNORMAL
FLUID CONDITION	NORMAL

Machine Id
CATERPILLAR 972H L10 A7D01072

Component
Hydraulic System

Fluid
CHEVRON RANDO HD 46 (--- GAL)

RECOMMENDATION

We recommend you service the filters on this component. We recommend an early resample to monitor this condition.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		TR06195892	TR06171215	TR06119582
Sample Date		Client Info		17 May 2024	23 Apr 2024	21 Feb 2024
Machine Age	hrs	Client Info		12036	11874	11532
Oil Age	hrs	Client Info		754	592	250
Filter Age	hrs	Client Info		754	592	250
Oil Changed		Client Info		Not Changd	Not Changd	N/A
Filter Changed		Client Info		Not Changd	Not Changd	N/A
Sample Status				ABNORMAL	NORMAL	ABNORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>20	14	13	▲ 24
Chromium	ppm	ASTM D5185m	>10	3	3	5
Nickel	ppm	ASTM D5185m	>10	0	0	0
Titanium	ppm	ASTM D5185m		0	0	<1
Silver	ppm	ASTM D5185m		0	0	0
Aluminum	ppm	ASTM D5185m	>10	2	2	4
Lead	ppm	ASTM D5185m	>10	0	1	<1
Copper	ppm	ASTM D5185m	>75	23	23	47
Tin	ppm	ASTM D5185m	>10	0	<1	0
Vanadium	ppm	ASTM D5185m		<1	0	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

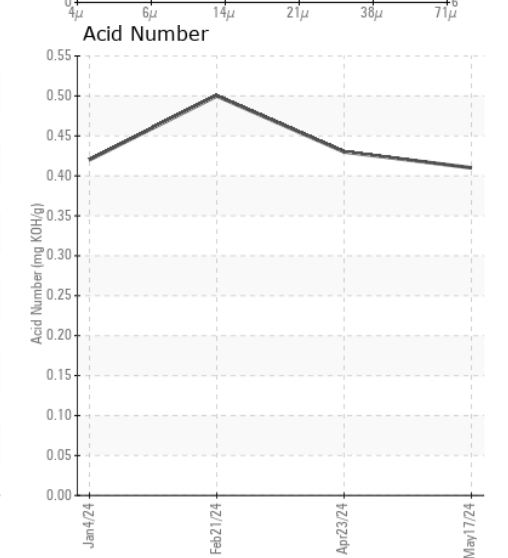
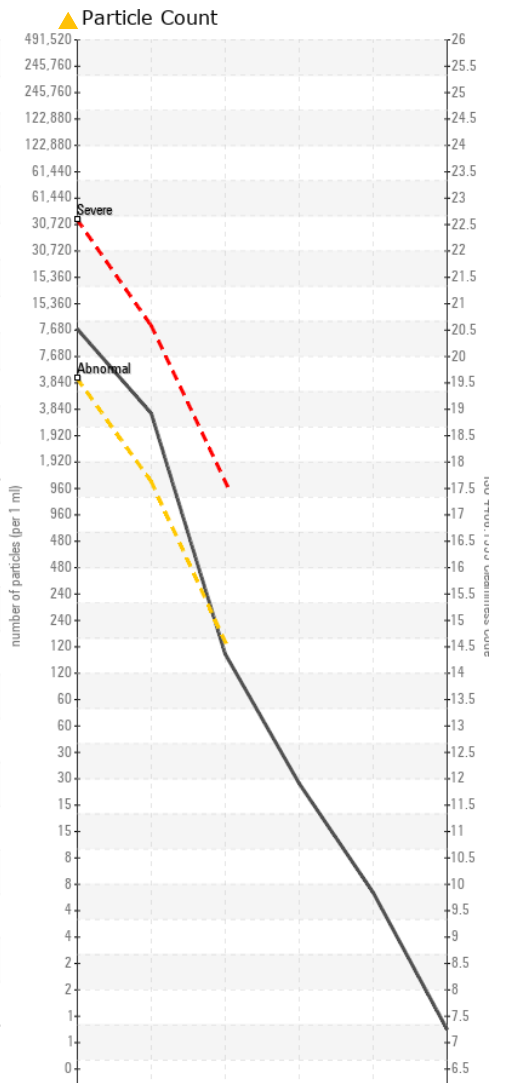
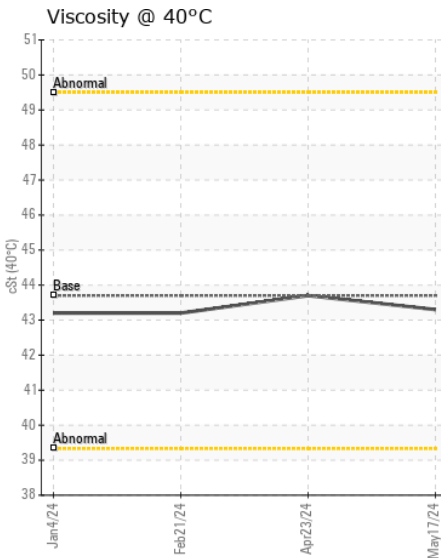
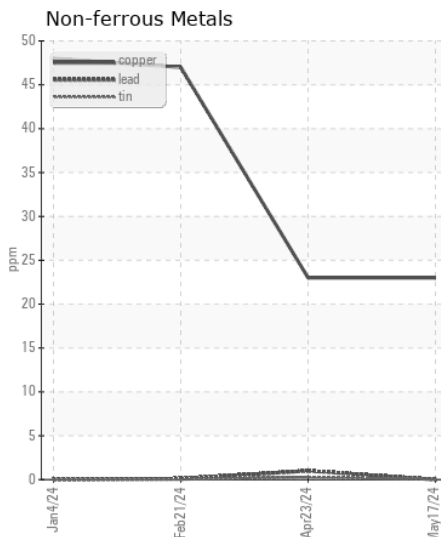
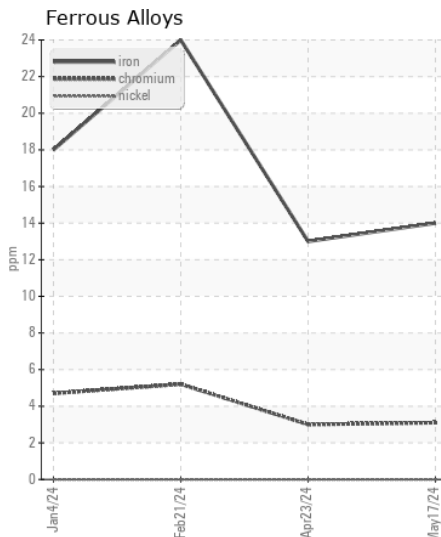
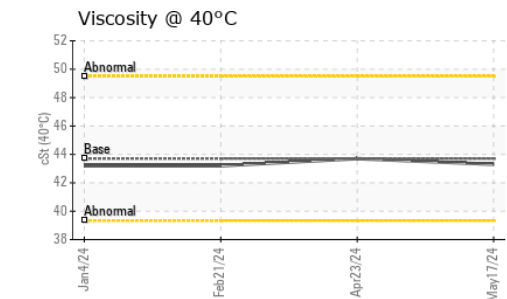
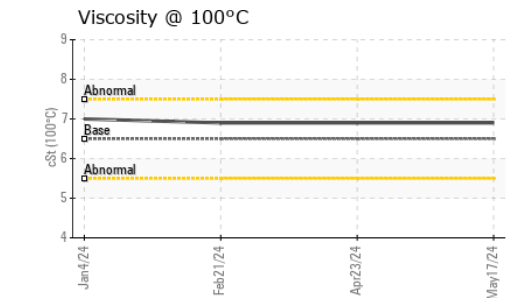
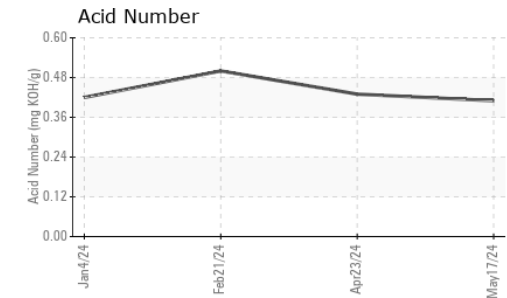
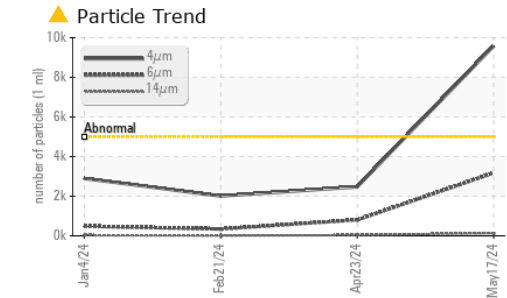
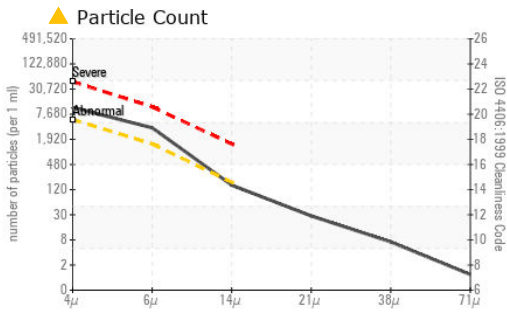
There is a moderate amount of silt (particulates < 14 microns in size) present in the oil.

Silicon	ppm	ASTM D5185m	>20	3	3	5
Potassium	ppm	ASTM D5185m	>20	1	4	3
Water		WC Method	>0.1	NEG	NEG	NEG
Particles >4µm		ASTM D7647	>5000	● 9578	2472	2010
Particles >6µm		ASTM D7647	>1300	▲ 3176	802	342
Particles >14µm		ASTM D7647	>160	136	33	11
Particles >21µm		ASTM D7647	>40	25	1	4
Particles >38µm		ASTM D7647	>10	6	0	0
Particles >71µm		ASTM D7647	>3	1	0	0
Oil Cleanliness		ISO 4406 (c)	>19/17/14	▲ 20/19/14	18/17/12	18/16/11
Silt	scalar	*Visual	NONE	LIGHT	NONE	LIGHT
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	>0.1	NEG	NEG	NEG

FLUID CONDITION

The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

Sodium	ppm	ASTM D5185m		2	2	5
Boron	ppm	ASTM D5185m		0	<1	0
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		<1	0	0
Manganese	ppm	ASTM D5185m		0	<1	<1
Magnesium	ppm	ASTM D5185m		5	11	3
Calcium	ppm	ASTM D5185m		108	98	123
Phosphorus	ppm	ASTM D5185m		404	428	414
Zinc	ppm	ASTM D5185m		526	534	525
Sulfur	ppm	ASTM D5185m		1122	1185	1167
Acid Number (AN)	mg KOH/g	ASTM D8045		0.41	0.43	0.50
Visc @ 40°C	cSt	ASTM D445	43.7	43.3	43.7	43.2
Visc @ 100°C	cSt	ASTM D445	6.5	6.9	6.9	6.9
Viscosity Index (VI)	Scale	ASTM D2270	97	116	114	116



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : TR06195892 **Received** : 30 May 2024
Lab Number : 06195892 **Tested** : 02 Jun 2024
Unique Number : 11058015 **Diagnosed** : 02 Jun 2024 - Wes Davis
Test Package : MOB 2 (Additional Tests: KV100, VI)

BARR-TECH COMPOSTING
 9117 KALLENBERGER RD N
 SPRAGUE, WA
 US 99032
 Contact: RON GROGAN

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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F: