



TRAAP

Texas Refinery Advanced Analysis Program

OIL ANALYSIS REPORT

WEAR	ABNORMAL
CONTAMINATION	ABNORMAL
FLUID CONDITION	NORMAL

Machine Id
T14
 Component
1 Hydraulic System
 Fluid
{not provided} (20 GAL)

RECOMMENDATION

We recommend you service the filters on this component. Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		TR0001505	TR0001376	TR0001136
Sample Date		Client Info		03 May 2024	09 Jan 2024	15 Sep 2023
Machine Age	hrs	Client Info		4759	4203	3615
Oil Age	hrs	Client Info		4759	4203	3615
Filter Age	hrs	Client Info		4759	4203	3615
Oil Changed		Client Info		Not Chngd	Not Chngd	Not Chngd
Filter Changed		Client Info		Not Chngd	Not Chngd	Not Chngd
Sample Status				ABNORMAL	ABNORMAL	ABNORMAL

WEAR

The iron level is abnormal. All other component wear rates are normal.

Iron	ppm	ASTM D5185m	>20	▲ 42	▲ 30	▲ 21
Chromium	ppm	ASTM D5185m	>10	0	<1	0
Nickel	ppm	ASTM D5185m	>10	0	0	<1
Titanium	ppm	ASTM D5185m		<1	<1	<1
Silver	ppm	ASTM D5185m		0	0	0
Aluminum	ppm	ASTM D5185m	>10	4	3	4
Lead	ppm	ASTM D5185m	>10	<1	0	<1
Copper	ppm	ASTM D5185m	>75	2	2	2
Tin	ppm	ASTM D5185m	>10	<1	0	<1
Vanadium	ppm	ASTM D5185m		0	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

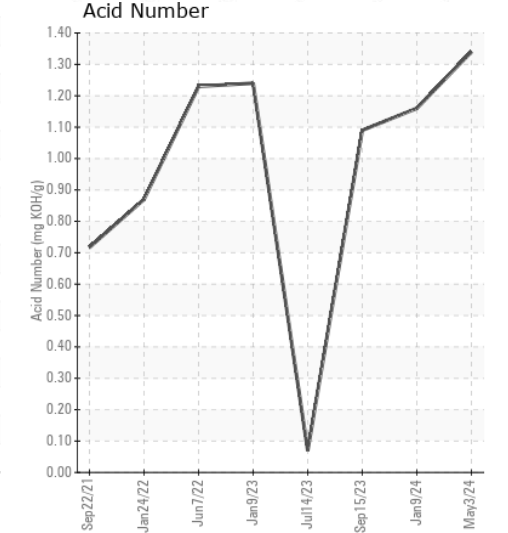
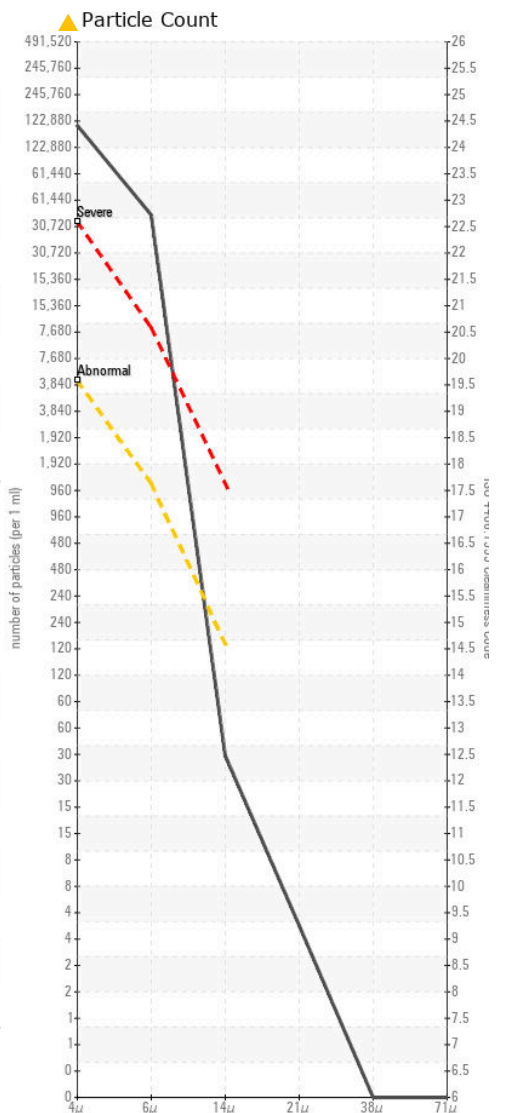
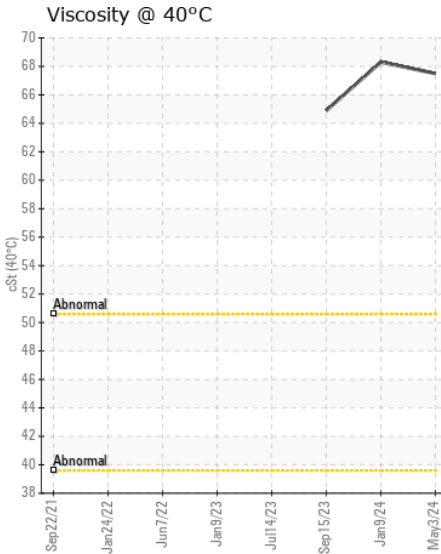
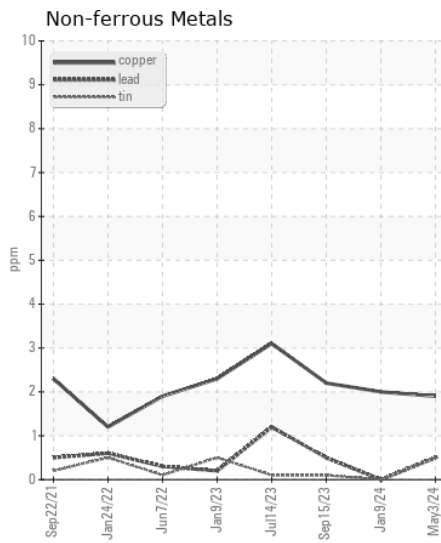
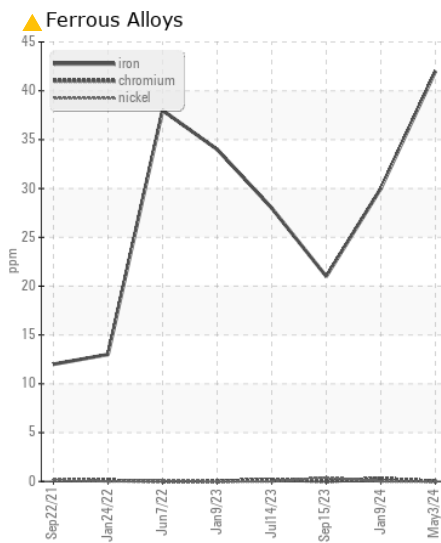
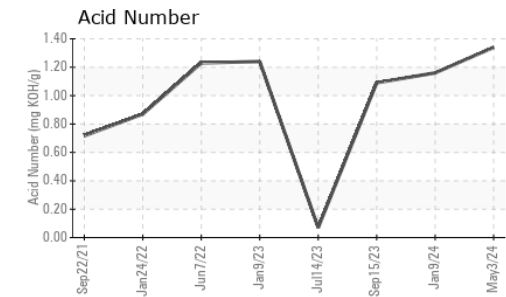
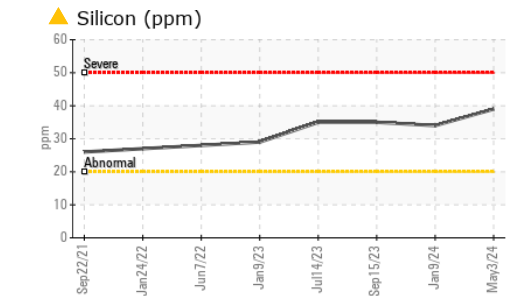
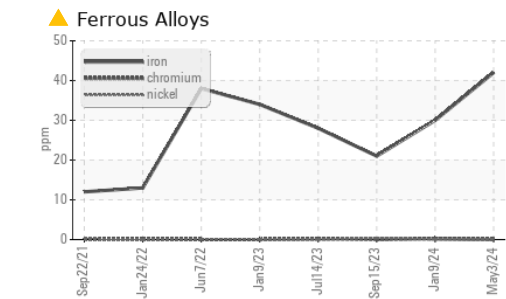
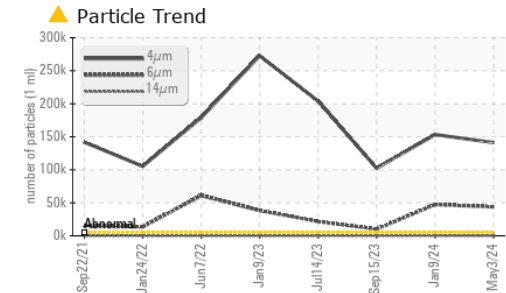
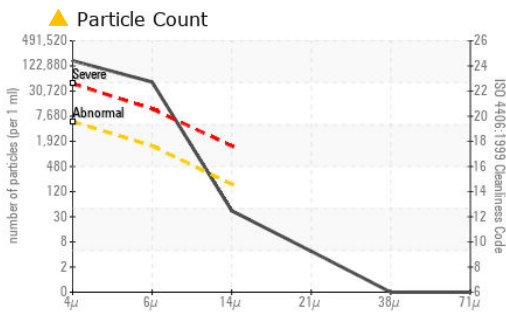
There is a high amount of silt (particulates < 14 microns in size) present in the oil. Elemental level of silicon (Si) above normal indicating ingress of seal material.

Silicon	ppm	ASTM D5185m	>20	▲ 39	▲ 34	▲ 35
Potassium	ppm	ASTM D5185m	>20	2	3	3
Water		WC Method	>0.1	NEG	NEG	NEG
Particles >4µm		ASTM D7647	>5000	▲ 141172	▲ 153254	▲ 102190
Particles >6µm		ASTM D7647	>1300	▲ 43694	▲ 47306	▲ 10016
Particles >14µm		ASTM D7647	>160	37	▲ 165	34
Particles >21µm		ASTM D7647	>40	4	30	5
Particles >38µm		ASTM D7647	>10	0	2	1
Particles >71µm		ASTM D7647	>3	0	2	0
Oil Cleanliness		ISO 4406 (c)	>19/17/14	▲ 24/23/12	▲ 24/23/15	▲ 24/21/12
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	>0.1	NEG	NEG	NEG

FLUID CONDITION

The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m		3	2	<1
Boron	ppm	ASTM D5185m		9	9	9
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		3	4	5
Manganese	ppm	ASTM D5185m		<1	0	<1
Magnesium	ppm	ASTM D5185m		32	30	32
Calcium	ppm	ASTM D5185m		1748	1608	1601
Phosphorus	ppm	ASTM D5185m		709	712	651
Zinc	ppm	ASTM D5185m		831	803	822
Sulfur	ppm	ASTM D5185m		3526	3159	3262
Acid Number (AN)	mg KOH/g	ASTM D8045		1.34	1.16	1.09
Visc @ 40°C	cSt	ASTM D445		67.5	68.3	64.9
Visc @ 100°C	cSt	ASTM D445		9.0	9.1	8.9
Viscosity Index (VI)	Scale	ASTM D2270		107	108	111



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : TR0001505 **Received** : 09 May 2024
Lab Number : 06174589 **Tested** : 10 May 2024
Unique Number : 11020642 **Diagnosed** : 13 May 2024 - Don Baldrige
Test Package : MOB 2 (Additional Tests: KV100, VI)

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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)