



WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Area
JOHN R OPERLE
Machine Id
[JOHN R OPERLE] 010 630998-10
Component
Steering
Fluid
CHEVRON RANDO HDZ 68 (120 GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		MW0066009	MW0061750	MW0038610
Sample Date		Client Info		03 May 2024	01 Nov 2023	01 May 2023
Machine Age	hrs	Client Info		62000	60725	56942
Oil Age	hrs	Client Info		62000	60725	56942
Filter Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		N/A	N/A	N/A
Filter Changed		Client Info		N/A	N/A	Changed
Sample Status				NORMAL	ABNORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>50	0	1	2
Chromium	ppm	ASTM D5185m	>15	0	<1	<1
Nickel	ppm	ASTM D5185m	>5	0	<1	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m		0	0	0
Aluminum	ppm	ASTM D5185m	>5	0	<1	<1
Lead	ppm	ASTM D5185m	>10	2	2	<1
Copper	ppm	ASTM D5185m	>50	25	26	26
Tin	ppm	ASTM D5185m	>5	<1	1	<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

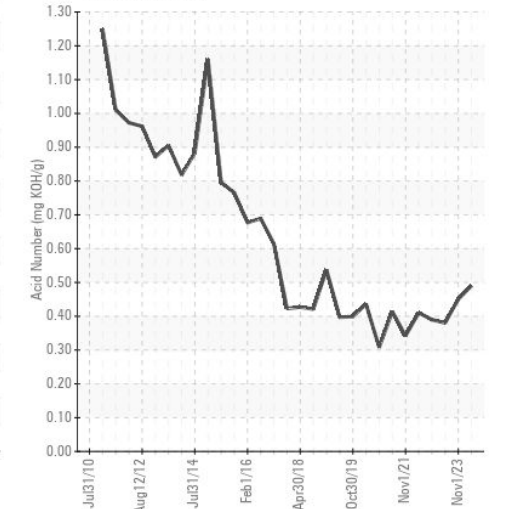
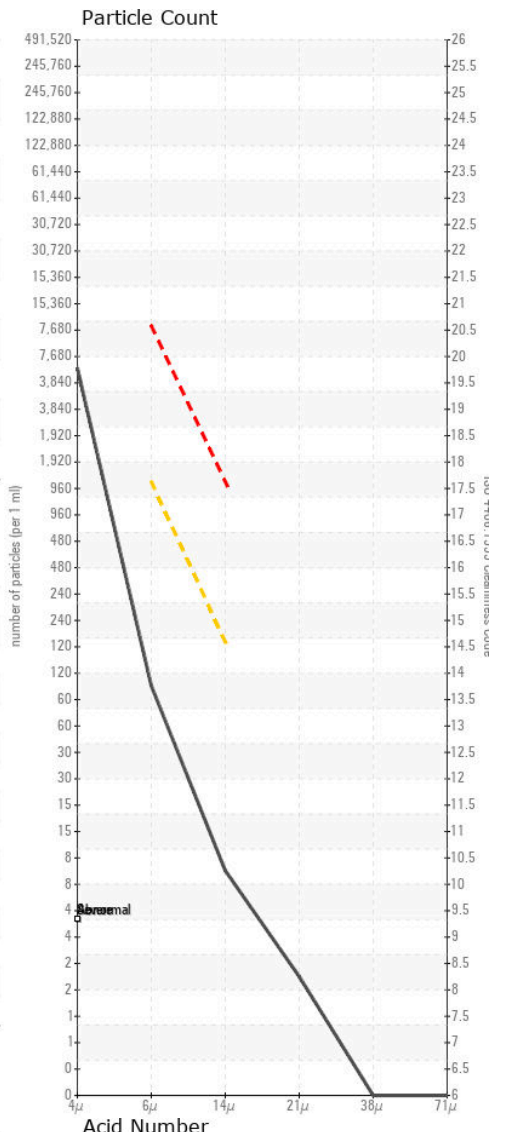
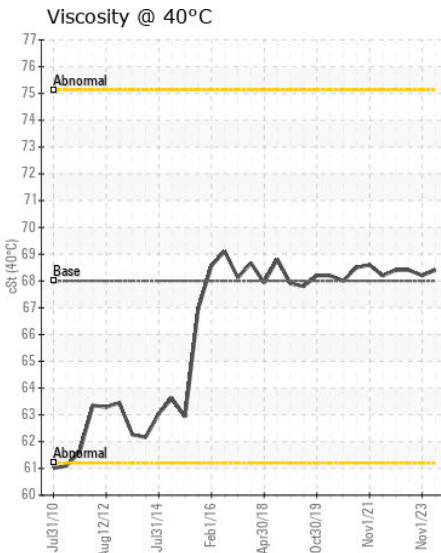
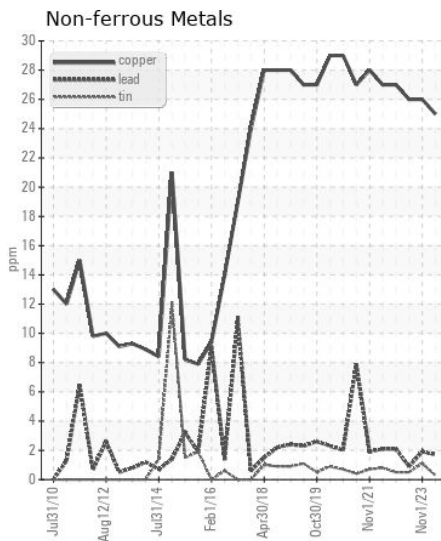
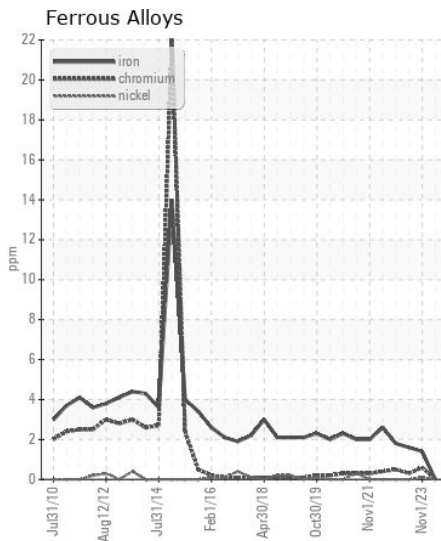
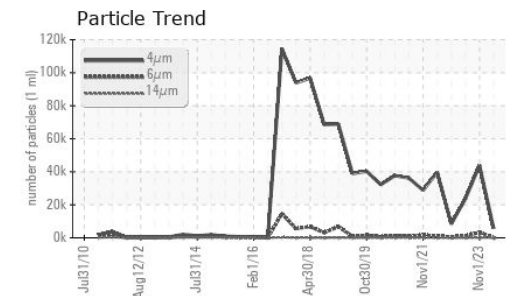
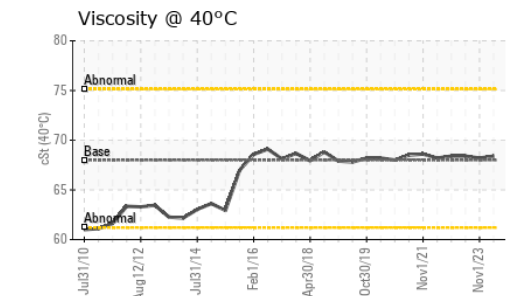
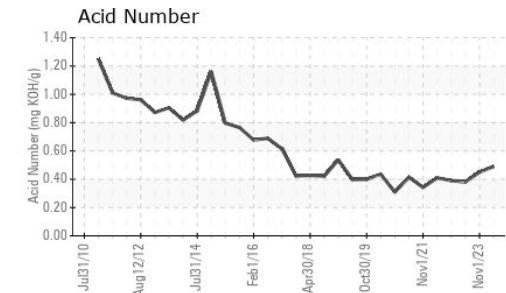
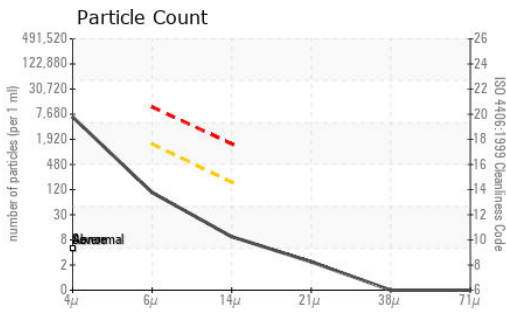
The amount and size of particulates present in the system are acceptable. There is no indication of any contamination in the fluid.

Silicon	ppm	ASTM D5185m	>15	<1	1	<1
Potassium	ppm	ASTM D5185m	>20	1	<1	0
Water		WC Method	>0.2	NEG	NEG	NEG
Particles >4µm		ASTM D7647		5762	43839	23625
Particles >6µm		ASTM D7647	>1300	90	▲ 3176	1258
Particles >14µm		ASTM D7647	>160	8	99	44
Particles >21µm		ASTM D7647	>40	2	25	10
Particles >38µm		ASTM D7647	>10	0	2	1
Particles >71µm		ASTM D7647	>3	0	0	0
Oil Cleanliness		ISO 4406 (c)	>-/17/14	20/14/10	▲ 23/19/14	22/17/13
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 AN level is acceptable for this fluid. The condition of the fluid is suitable for further service.

Sodium	ppm	ASTM D5185m		<1	0	0
Boron	ppm	ASTM D5185m	0	0	0	0
Barium	ppm	ASTM D5185m	0	0	0	0
Molybdenum	ppm	ASTM D5185m	0	0	0	0
Manganese	ppm	ASTM D5185m		0	0	0
Magnesium	ppm	ASTM D5185m	0	<1	<1	2
Calcium	ppm	ASTM D5185m	75	53	54	53
Phosphorus	ppm	ASTM D5185m	275	385	400	392
Zinc	ppm	ASTM D5185m	350	478	531	485
Sulfur	ppm	ASTM D5185m	550	1631	1557	1742
Acid Number (AN)	mg KOH/g	ASTM D8045		0.49	0.45	0.38
Visc @ 40°C	cSt	ASTM D445	68.0	68.4	68.2	68.4



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MW0066009 **Received** : 10 May 2024
Lab Number : 06176063 **Tested** : 14 May 2024
Unique Number : 11022116 **Diagnosed** : 14 May 2024 - Don Baldrige
Test Package : MAR 2 (Additional Tests: PrtCount)

To discuss this sample report, contact Customer Service at 1-800-237-1369.

* - 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)

INGRAM BARGE
 900 S 3RD ST
 PADUCAH, KY
 US 42003

Contact: ALLEN WILLHELM
 allen.willhelm@ingrambarga.com
 T: (270)415-4467
 F: (615)695-3697