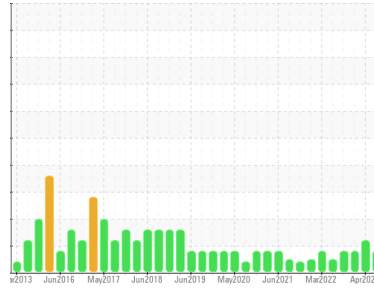




PROBLEM SUMMARY

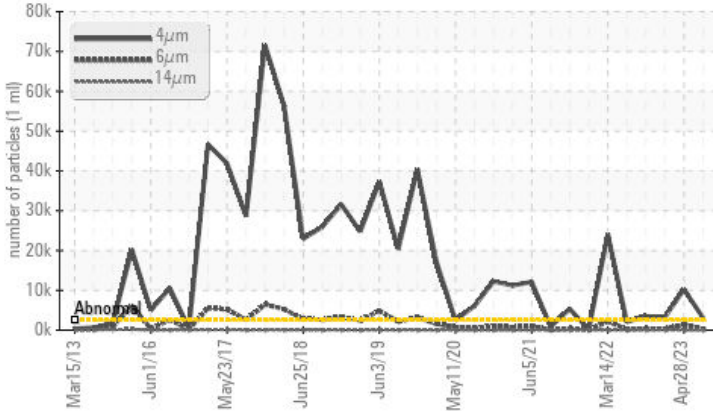
Sample Rating Trend



Area
Rainbow
 Machine Id
RNB09-03 Governor GPU
 Component
Case Drain Governor System
 Fluid
CHEVRON GST OIL ISO 68 (200 GAL)

COMPONENT CONDITION SUMMARY

▲ Particle Trend



RECOMMENDATION

No corrective action is recommended at this time.
 Resample at the next service interval to monitor.

PROBLEMATIC TEST RESULTS

Sample Status		ATTENTION	ABNORMAL	ATTENTION
Particles >4µm	ASTM D7647 >2500	▲ 3121	▲ 10230	▲ 3301
Oil Cleanliness	ISO 4406 (c) >18/16/13	▲ 19/15/11	▲ 21/18/11	▲ 19/16/12

Customer Id: PPLBUT
 Sample No.: WC0757845
 Lab Number: 05933488
 Test Package: IND 2



To manage this report scan the QR code

To discuss the diagnosis or test data:
 Jonathan Hester +1 919-379-4092 x4092
jhester@wearcheckusa.com

To change component or sample information:
 Customer Service +1 1-800-237-1369
customerservice@wearcheck.com

RECOMMENDED ACTIONS

There are no recommended actions for this sample.

HISTORICAL DIAGNOSIS

28 Apr 2023 Diag: Don Baldrige

ISO



We recommend you service the filters on this component. Resample at the next service interval to monitor. All component wear rates are normal. There is a high amount of silt (particulates < 14 microns in size) present in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report



08 Mar 2023 Diag: Jonathan Hester

ISO



No corrective action is recommended at this time. Resample at the next service interval to monitor. All component wear rates are normal. There is a moderate amount of silt (particulates < 6 microns in size) present in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report



02 Dec 2022 Diag: Jonathan Hester

ISO



No corrective action is recommended at this time. Resample at the next service interval to monitor. All component wear rates are normal. There is a moderate amount of silt (particulates < 6 microns in size) present in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

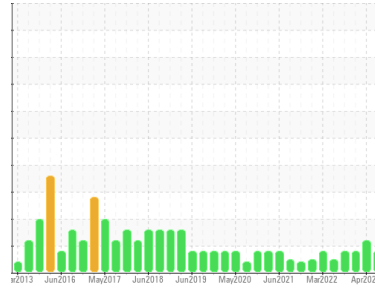
view report





OIL ANALYSIS REPORT

Sample Rating Trend



ISO



Area
Rainbow
 Machine Id
RNB09-03 Governor GPU
 Component
Case Drain Governor System
 Fluid
CHEVRON GST OIL ISO 68 (200 GAL)

DIAGNOSIS

Recommendation

No corrective action is recommended at this time. Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is a moderate amount of silt (particulates < 6 microns in size) present in the oil.

Fluid Condition

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

SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	WC0757845	WC0757792	WC0757823
Sample Date	Client Info	12 Aug 2023	28 Apr 2023	08 Mar 2023
Machine Age	hrs	Client Info	0	0
Oil Age	hrs	Client Info	0	0
Oil Changed	Client Info	N/A	N/A	N/A
Sample Status		ATTENTION	ABNORMAL	ATTENTION

WEAR METALS

method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >50	0	0
Chromium	ppm	ASTM D5185m >10	0	0
Nickel	ppm	ASTM D5185m >10	0	0
Titanium	ppm	ASTM D5185m	0	0
Silver	ppm	ASTM D5185m	0	0
Aluminum	ppm	ASTM D5185m >3	0	<1
Lead	ppm	ASTM D5185m >75	<1	0
Copper	ppm	ASTM D5185m >15	<1	0
Tin	ppm	ASTM D5185m >55	0	0
Vanadium	ppm	ASTM D5185m	0	0
Cadmium	ppm	ASTM D5185m	0	0

ADDITIVES

method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	0
Barium	ppm	ASTM D5185m	2	0
Molybdenum	ppm	ASTM D5185m	0	0
Manganese	ppm	ASTM D5185m	0	<1
Magnesium	ppm	ASTM D5185m	<1	0
Calcium	ppm	ASTM D5185m	0	0
Phosphorus	ppm	ASTM D5185m	1	6
Zinc	ppm	ASTM D5185m	<1	0
Sulfur	ppm	ASTM D5185m	763	869

CONTAMINANTS

method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >8	0	2
Sodium	ppm	ASTM D5185m	0	<1
Potassium	ppm	ASTM D5185m >20	1	0

FLUID CLEANLINESS

method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647 >2500	▲ 3121	▲ 10230	▲ 3301
Particles >6µm	ASTM D7647 >640	287	▲ 1334	366
Particles >14µm	ASTM D7647 >80	13	13	26
Particles >21µm	ASTM D7647 >20	4	1	10
Particles >38µm	ASTM D7647 >4	1	0	0
Particles >71µm	ASTM D7647 >3	0	0	0
Oil Cleanliness	ISO 4406 (c) >18/16/13	▲ 19/15/11	▲ 21/18/11	▲ 19/16/12

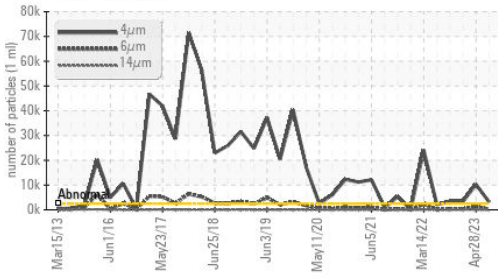
FLUID DEGRADATION

method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	0.092	0.109

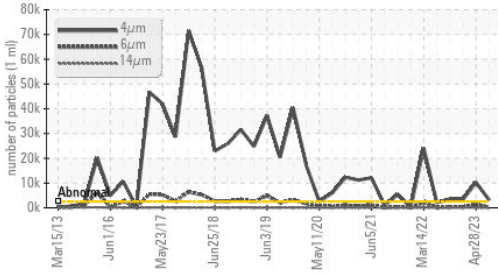


OIL ANALYSIS REPORT

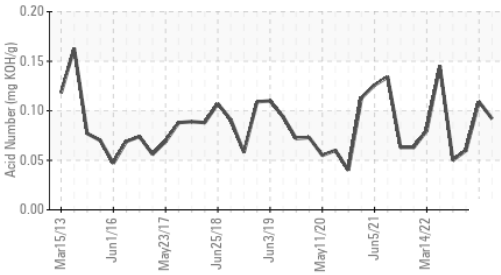
▲ Particle Trend



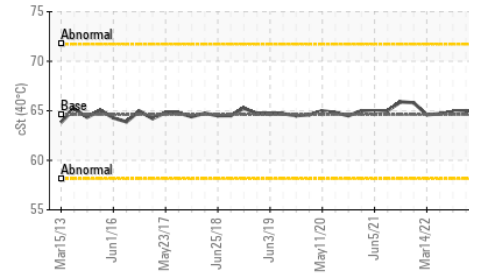
▲ Particle Trend



Acid Number



Viscosity @ 40°C



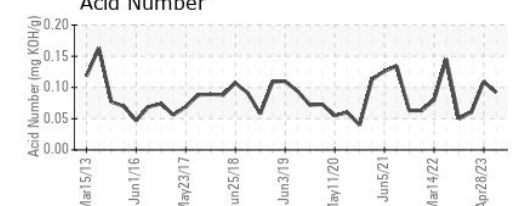
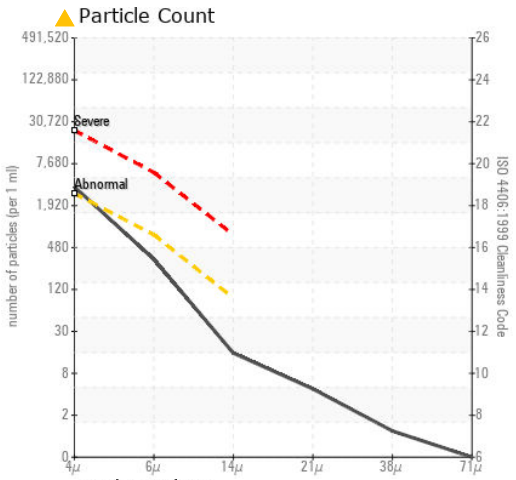
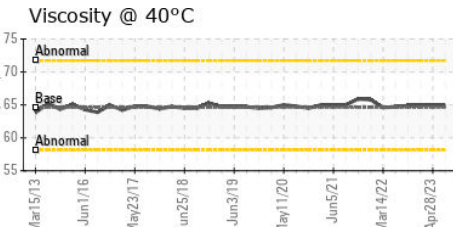
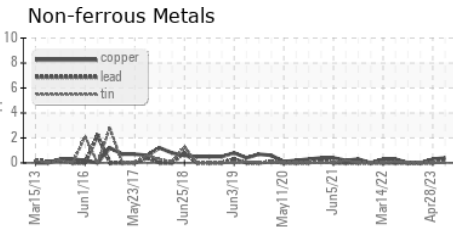
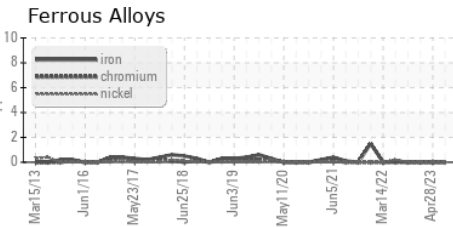
VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.1	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	64.6	64.9	65.0

SAMPLE IMAGES	method	limit/base	current	history1	history2
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GRAPHS



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0757845 **Received** : 24 Aug 2023
Lab Number : 05933488 **Diagnosed** : 28 Aug 2023
Unique Number : 10618759 **Diagnostician** : Jonathan Hester
Test Package : IND 2 (Additional Tests: PrtCount)

NORTHWESTERN ENERGY
 6700 RAINBOW DAM RD
 GREAT FALLS, MT
 US 59404
 Contact: STANLEY BOGNATZ
 srb@mbsi.com
 T: (570)575-9252
 F: (570)227-0014

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)