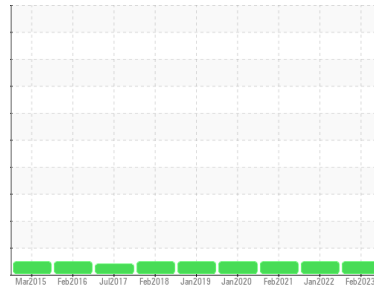




# OIL ANALYSIS REPORT

Sample Rating Trend

**NORMAL**



Area  
**Thompson Falls**  
 Machine Id  
**THF06 Generator Lube Oil**  
 Component  
**Case Drain Lube System**  
 Fluid  
**CONOCO TURBINE OIL 68 (360 GAL)**

## DIAGNOSIS

### Recommendation

Resample at the next service interval to monitor.

### Wear

All component wear rates are normal.

### Contamination

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

### 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			<b>WCI2326095</b>	WCI2326093	WCI2326264
Sample Date	Client Info			<b>07 Feb 2023</b>	19 Jan 2022	01 Feb 2021
Machine Age	yrs	Client Info		<b>14</b>	13	12
Oil Age	yrs	Client Info		<b>14</b>	13	12
Oil Changed	Client Info			<b>Not Chngd</b>	N/A	Not Chngd
Sample Status				<b>NORMAL</b>	NORMAL	NORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Water	WC Method		>0.05	<b>NEG</b>	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>20	<b>&lt;1</b>	0	0
Chromium	ppm	ASTM D5185m	>20	<b>0</b>	0	0
Nickel	ppm	ASTM D5185m	>20	<b>0</b>	<1	0
Titanium	ppm	ASTM D5185m		<b>0</b>	0	0
Silver	ppm	ASTM D5185m		<b>0</b>	0	<1
Aluminum	ppm	ASTM D5185m	>20	<b>0</b>	0	0
Lead	ppm	ASTM D5185m	>20	<b>&lt;1</b>	<1	<1
Copper	ppm	ASTM D5185m	>20	<b>0</b>	<1	<1
Tin	ppm	ASTM D5185m	>20	<b>&lt;1</b>	<1	<1
Antimony	ppm	ASTM D5185m		<b>---</b>	<1	0
Vanadium	ppm	ASTM D5185m		<b>0</b>	0	0
Cadmium	ppm	ASTM D5185m		<b>0</b>	0	0

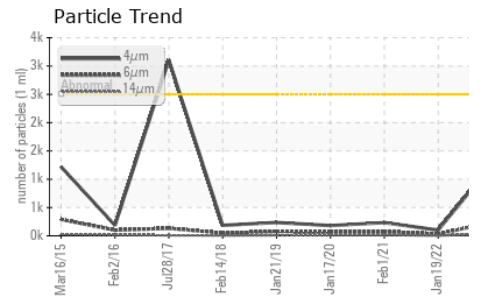
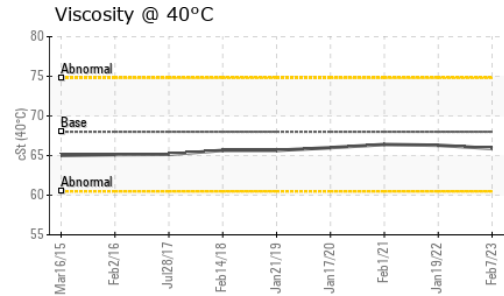
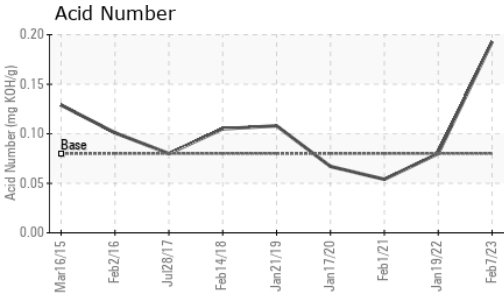
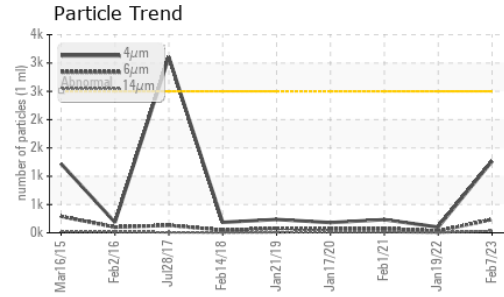
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		<b>0</b>	<1	<1
Barium	ppm	ASTM D5185m		<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m		<b>2</b>	0	0
Manganese	ppm	ASTM D5185m		<b>0</b>	0	0
Magnesium	ppm	ASTM D5185m		<b>0</b>	0	0
Calcium	ppm	ASTM D5185m		<b>1</b>	<1	1
Phosphorus	ppm	ASTM D5185m		<b>9</b>	10	13
Zinc	ppm	ASTM D5185m		<b>1</b>	0	0
Sulfur	ppm	ASTM D5185m		<b>352</b>	296	282

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>15	<b>0</b>	<1	<1
Sodium	ppm	ASTM D5185m		<b>0</b>	<1	<1
Potassium	ppm	ASTM D5185m	>20	<b>&lt;1</b>	0	0

FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>2500	<b>1266</b>	101	233
Particles >6µm		ASTM D7647	>640	<b>236</b>	31	77
Particles >14µm		ASTM D7647	>80	<b>33</b>	3	13
Particles >21µm		ASTM D7647	>20	<b>8</b>	1	4
Particles >38µm		ASTM D7647	>4	<b>2</b>	0	0
Particles >71µm		ASTM D7647	>3	<b>0</b>	0	0
Oil Cleanliness		ISO 4406 (c)	>18/16/13	<b>17/15/12</b>	14/12/9	15/13/11



# OIL ANALYSIS REPORT

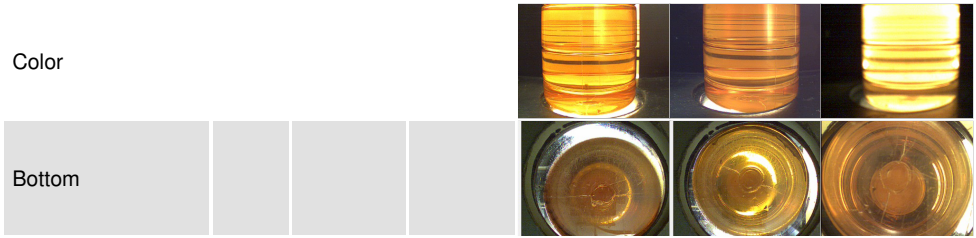


FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	0.08	<b>0.193</b>	0.08	0.054

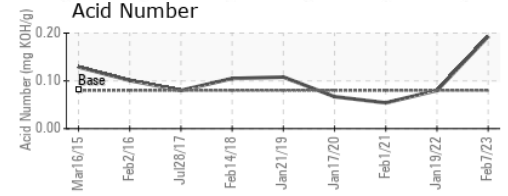
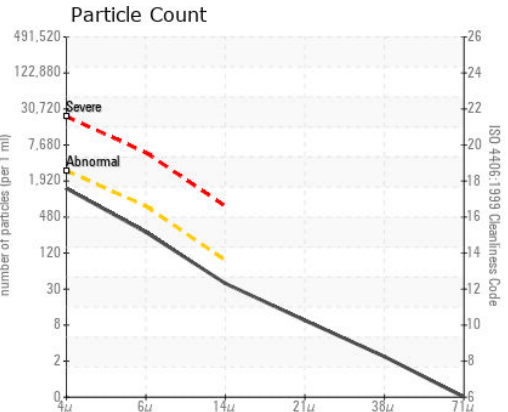
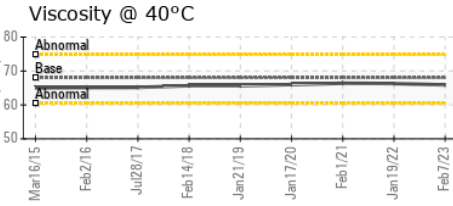
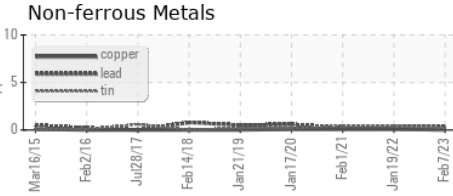
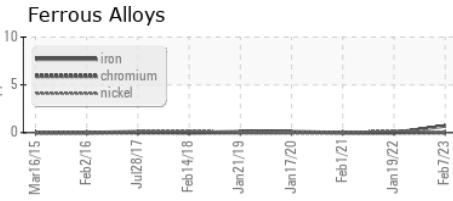
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Precipitate	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Silt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Debris	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Appearance	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Odor	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Emulsified Water	scalar	*Visual	>0.05	<b>NEG</b>	NEG	NEG
Free Water	scalar	*Visual		<b>NEG</b>	NEG	NEG

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	68	<b>65.9</b>	66.3	66.4

### SAMPLE IMAGES



### GRAPHS



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : WC12326095 **Received** : 10 Feb 2023  
**Lab Number** : **05765066** **Diagnosed** : 13 Feb 2023  
**Unique Number** : 10334674 **Diagnostician** : Doug Bogart  
**Test Package** : IND 2

**NORTHWESTERN ENERGY**  
 6700 RAINBOW DAM RD  
 GREAT FALLS, MT  
 US 59404  
 Contact: BRIAN WARD  
 brian.ward@northwestern.com  
 T:  
 F: (406)533-3401

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)