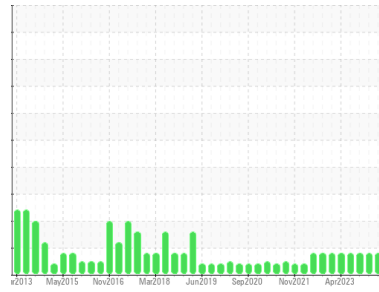




# OIL ANALYSIS REPORT

Sample Rating Trend



ISO



Area

## Black Eagle - PPLBUT

Machine Id

### BLE02 Generator Thrust Bearing (S/N 122345)

Component

Port Lube System

Fluid

CONOCO MULTIPURPOSE R&O OIL ISO 68 (100 GAL)

#### DIAGNOSIS

##### Recommendation

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		WC0926191	WC0843449	WC0843397
Sample Date	Client Info		18 May 2024	29 Feb 2024	08 Nov 2023
Machine Age	hrs	Client Info	0	0	0
Oil Age	hrs	Client Info	0	0	0
Oil Changed	Client Info		N/A	N/A	N/A
Sample Status			ATTENTION	ATTENTION	ABNORMAL

#### CONTAMINATION

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

#### WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >20	2	0	3
Chromium	ppm	ASTM D5185m >20	0	<1	0
Nickel	ppm	ASTM D5185m >20	0	0	0
Titanium	ppm	ASTM D5185m	<1	0	0
Silver	ppm	ASTM D5185m	<1	0	0
Aluminum	ppm	ASTM D5185m >20	<1	2	0
Lead	ppm	ASTM D5185m >20	<1	<1	0
Copper	ppm	ASTM D5185m >20	0	0	0
Tin	ppm	ASTM D5185m >20	<1	<1	<1
Vanadium	ppm	ASTM D5185m	<1	0	0
Cadmium	ppm	ASTM D5185m	<1	0	0

#### ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	0	0
Barium	ppm	ASTM D5185m	0	0	0
Molybdenum	ppm	ASTM D5185m	0	0	0
Manganese	ppm	ASTM D5185m	<1	0	0
Magnesium	ppm	ASTM D5185m	<1	<1	0
Calcium	ppm	ASTM D5185m	<1	3	0
Phosphorus	ppm	ASTM D5185m	19	11	19
Zinc	ppm	ASTM D5185m	2	0	0
Sulfur	ppm	ASTM D5185m	62	0	3

#### CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >15	<1	<1	<1
Sodium	ppm	ASTM D5185m	<1	0	0
Potassium	ppm	ASTM D5185m >20	2	<1	0

#### FLUID CLEANLINESS

	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>2500	3828	3788	6263
Particles >6µm	ASTM D7647	>640	234	198	214
Particles >14µm	ASTM D7647	>80	14	8	6
Particles >21µm	ASTM D7647	>20	4	1	2
Particles >38µm	ASTM D7647	>4	0	0	0
Particles >71µm	ASTM D7647	>3	0	0	0
Oil Cleanliness	ISO 4406 (c)	>18/16/13	19/15/11	19/15/10	20/15/10

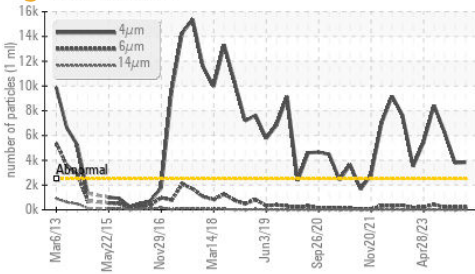
#### FLUID DEGRADATION

	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045 0.14	0.09	0.073	0.07

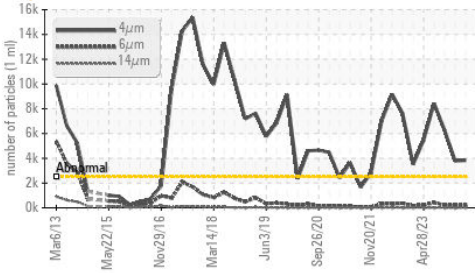


# OIL ANALYSIS REPORT

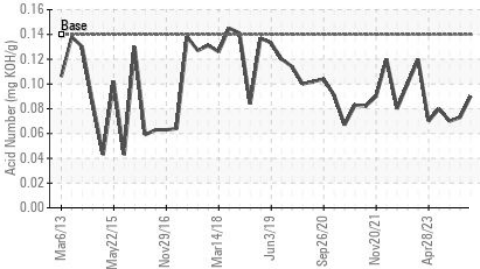
● Particle Trend



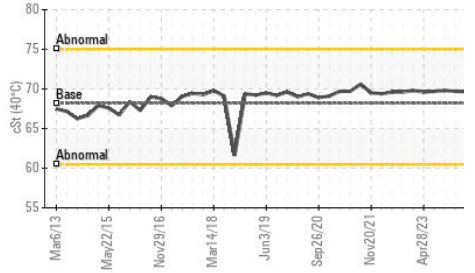
● Particle Trend



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	>0.05	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	68.2	69.65	69.7

SAMPLE IMAGES	method	limit/base	current	history1	history2
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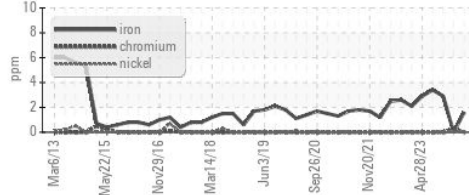
Color

Bottom

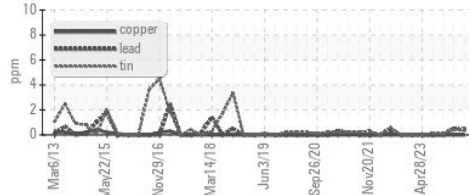


## GRAPHS

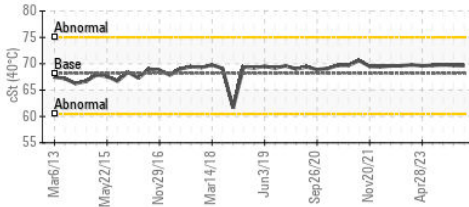
Ferrous Alloys



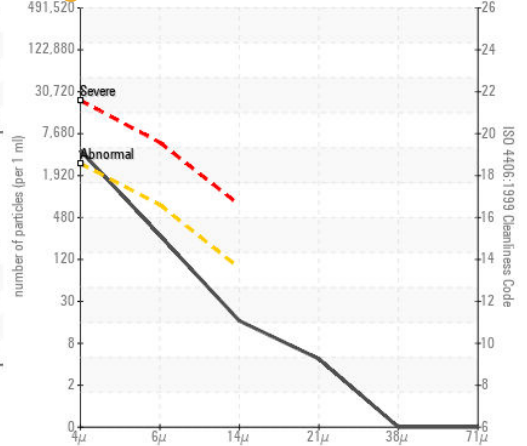
Non-ferrous Metals



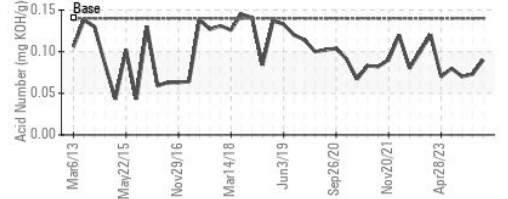
Viscosity @ 40°C



● Particle Count



Acid Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513

Sample No. : WC0926191

Lab Number : 06193966

Unique Number : 11056089

Test Package : IND 2

Received : 29 May 2024

Tested : 03 Jun 2024

Diagnosed : 03 Jun 2024 - Jonathan Hester

**NORTHWESTERN ENERGY**

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GREAT FALLS, MT

US 59404

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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)