



OIL ANALYSIS REPORT

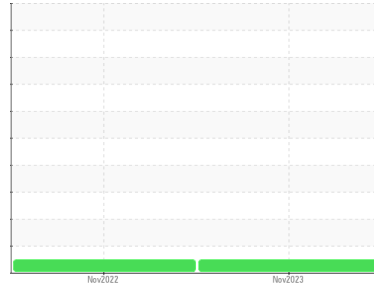
Sample Rating Trend

NORMAL



Machine Id
TURBO EXPANDER (S/N X2001M65498)

Component
Circulating System
Fluid
NOT GIVEN (--- GAL)



DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

The amount and size of particulates present in the system are acceptable. There is no indication of any contamination 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		WC0817280	WC0753571	---
Sample Date	Client Info		06 Nov 2023	18 Nov 2022	---
Machine Age	hrs	Client Info	5400	159	---
Oil Age	hrs	Client Info	5400	0	---
Oil Changed		Client Info	N/A	N/A	---
Sample Status			NORMAL	NORMAL	---

WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	0	0	---
Chromium	ppm	ASTM D5185m	0	0	---
Nickel	ppm	ASTM D5185m	0	<1	---
Titanium	ppm	ASTM D5185m	0	0	---
Silver	ppm	ASTM D5185m	0	<1	---
Aluminum	ppm	ASTM D5185m	0	0	---
Lead	ppm	ASTM D5185m	0	0	---
Copper	ppm	ASTM D5185m	0	<1	---
Tin	ppm	ASTM D5185m	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	0	0	---
Molybdenum	ppm	ASTM D5185m	0	0	---
Manganese	ppm	ASTM D5185m	0	<1	---
Magnesium	ppm	ASTM D5185m	0	<1	---
Calcium	ppm	ASTM D5185m	0	0	---
Phosphorus	ppm	ASTM D5185m	104	83	---
Zinc	ppm	ASTM D5185m	72	55	---
Sulfur	ppm	ASTM D5185m	437	214	---

CONTAMINANTS

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

FLUID CLEANLINESS

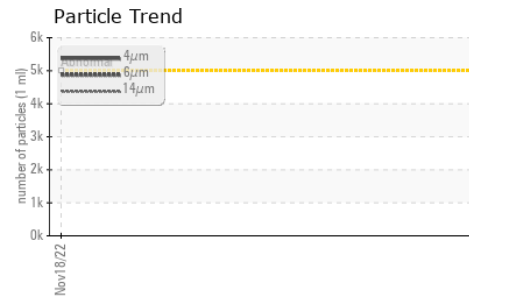
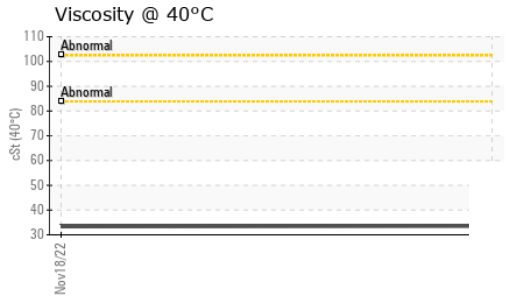
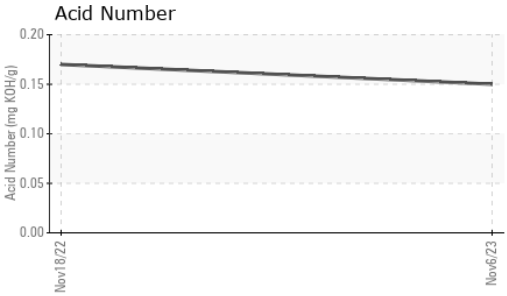
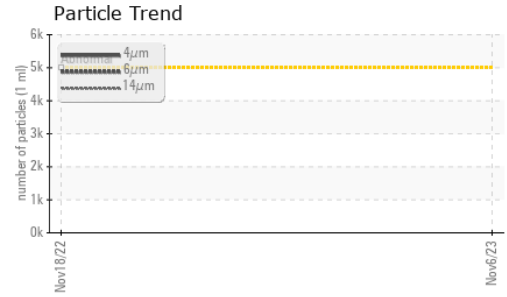
	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>5000	438	---	---
Particles >6µm	ASTM D7647	>1300	131	---	---
Particles >14µm	ASTM D7647	>160	10	---	---
Particles >21µm	ASTM D7647	>40	3	---	---
Particles >38µm	ASTM D7647	>10	0	---	---
Particles >71µm	ASTM D7647	>3	0	---	---
Oil Cleanliness	ISO 4406 (c)	>19/17/14	16/14/10	---	---

FLUID DEGRADATION

	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	0.15	0.17	---



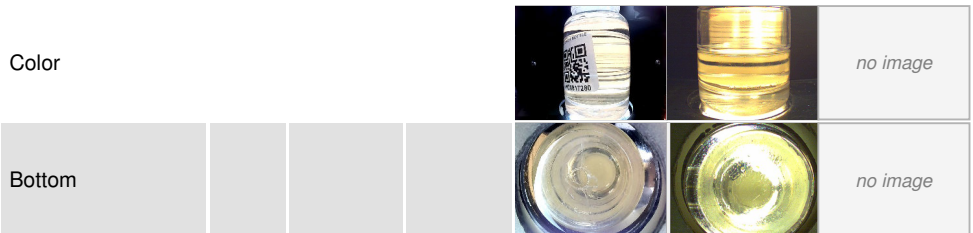
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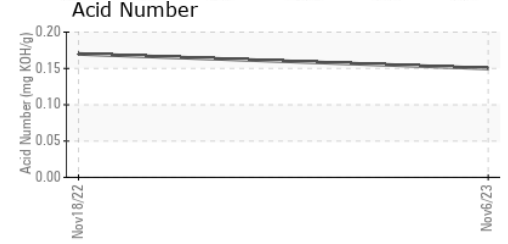
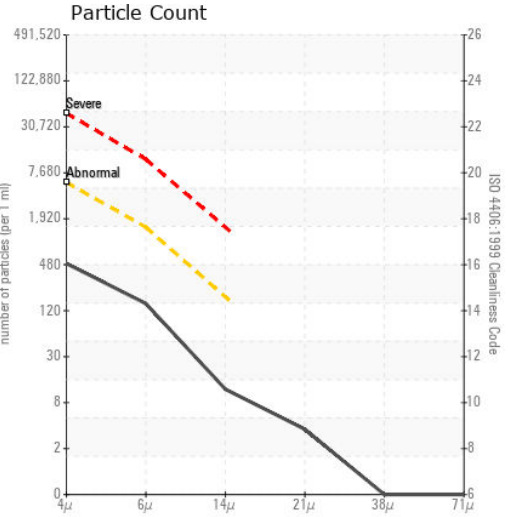
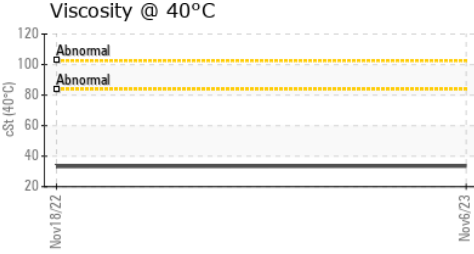
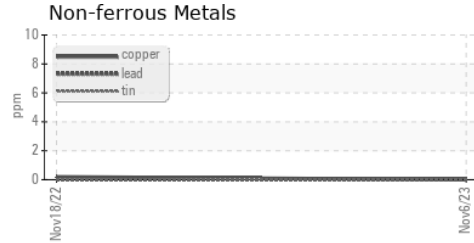
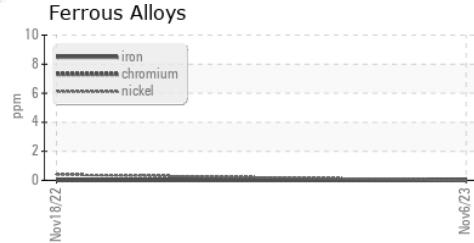
VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	---
Yellow Metal	scalar	*Visual	NONE	NONE	---
Precipitate	scalar	*Visual	NONE	NONE	---
Silt	scalar	*Visual	NONE	NONE	---
Debris	scalar	*Visual	NONE	NONE	---
Sand/Dirt	scalar	*Visual	NONE	NONE	---
Appearance	scalar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

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	33.5	33.3	---

SAMPLE IMAGES	method	limit/base	current	history1	history2
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GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0817280 **Received** : 06 Nov 2023
Lab Number : 05999985 **Diagnosed** : 13 Nov 2023
Unique Number : 10728345 **Diagnostician** : Angela Borella
Test Package : IND 2 (Additional Tests: PRTCOUNT)

PIEDMONT NATURAL GAS / DUKE ENERGY
 680 REV BILL RD
 MAXTON, NC
 US 28364
 Contact: ANDREW CAVENAUGH
 andrew.cavenaugh@duke-energy.com
 T: (910)227-0302
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Certificate L2367
 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)