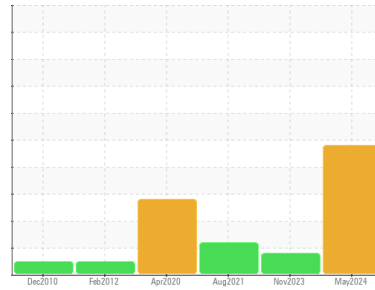


# OIL ANALYSIS REPORT

Sample Rating Trend



**WATER**



Machine Id  
**F-10**  
Component  
**Wind Turbine Gearbox**  
Fluid  
**ROYAL PURPLE SYNFILM GT 320 (65 GAL)**

**DIAGNOSIS**

**Recommendation**

Check seals and/or filters for points of contaminant entry. We advise that you check for the source of water entry. We advise that you follow the water drain-off procedure for this component. Replace filter element and resample at later date. In case already attempted and cleanliness was not improved then proceed to replace oil. There is too much water present in this sample to perform a particle count.

**Wear**

All component wear rates are normal.

**Contamination**

There is a light concentration of water present in the oil. Excessive free water present. Elemental level of silicon (Si) above normal indicating ingress of seal material.

**Fluid Condition**

The AN level is acceptable for this fluid.

**SAMPLE INFORMATION**

	method	limit/base	current	history1	history2
Sample Number	Client Info		<b>MHI026424</b>	MHI021530	MHI019990
Sample Date	Client Info		<b>07 May 2024</b>	25 Nov 2023	27 Aug 2021
Machine Age	hrs	Client Info	<b>0</b>	0	0
Oil Age	hrs	Client Info	<b>0</b>	0	0
Oil Changed	Client Info		<b>N/A</b>	N/A	N/A
Sample Status			<b>ABNORMAL</b>	MARGINAL	ABNORMAL

**WEAR METALS**

	method	limit/base	current	history1	history2
PQ	ASTM D8184	>200	<b>24</b>	18	24
Iron	ppm	ASTM D5185m	>200	<b>6</b>	10
Chromium	ppm	ASTM D5185m	>3	<b>0</b>	<1
Nickel	ppm	ASTM D5185m	>3	<b>&lt;1</b>	0
Titanium	ppm	ASTM D5185m	>10	<b>0</b>	<1
Silver	ppm	ASTM D5185m		<b>0</b>	0
Aluminum	ppm	ASTM D5185m	>30	<b>0</b>	2
Lead	ppm	ASTM D5185m	>15	<b>0</b>	0
Copper	ppm	ASTM D5185m	>75	<b>18</b>	6
Tin	ppm	ASTM D5185m	>10	<b>&lt;1</b>	0
Antimony	ppm	ASTM D5185m	>5	<b>---</b>	---
Vanadium	ppm	ASTM D5185m		<b>0</b>	0
Cadmium	ppm	ASTM D5185m		<b>0</b>	0

**ADDITIVES**

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		<b>0</b>	<1
Barium	ppm	ASTM D5185m		<b>&lt;1</b>	0
Molybdenum	ppm	ASTM D5185m		<b>0</b>	<1
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	0
Magnesium	ppm	ASTM D5185m	90	<b>&lt;1</b>	1
Calcium	ppm	ASTM D5185m		<b>&lt;1</b>	0
Phosphorus	ppm	ASTM D5185m		<b>10</b>	0
Zinc	ppm	ASTM D5185m		<b>16</b>	0
Sulfur	ppm	ASTM D5185m		<b>20274</b>	18302

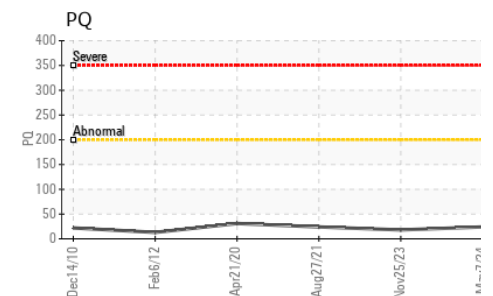
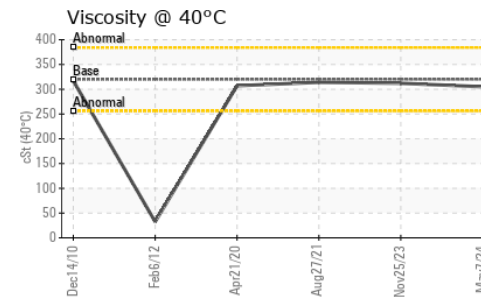
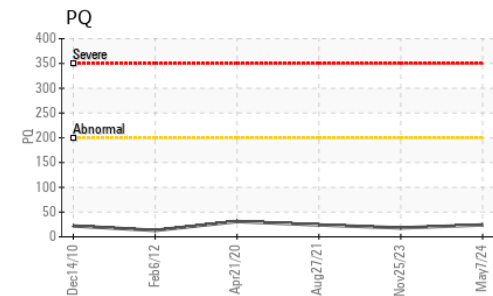
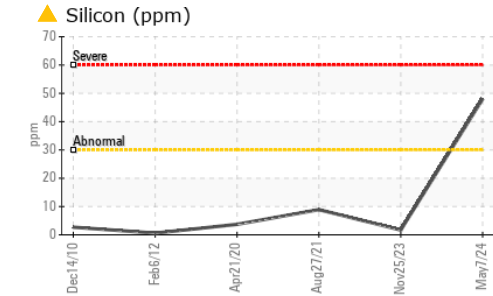
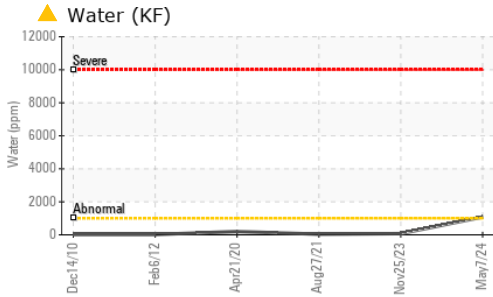
**CONTAMINANTS**

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>+30	<b>▲ 48</b>	2
Sodium	ppm	ASTM D5185m		<b>&lt;1</b>	0
Potassium	ppm	ASTM D5185m	>20	<b>2</b>	1
Water	%	ASTM D6304	>0.1	<b>▲ 0.108</b>	0.007
ppm Water	ppm	ASTM D6304	>1000	<b>▲ 1080</b>	74

**FLUID CLEANLINESS**

	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647		<b>---</b>	113097	141539
Particles >6µm	ASTM D7647	>5000	<b>---</b>	<b>▲ 8329</b>	<b>▲ 31885</b>
Particles >14µm	ASTM D7647	>640	<b>---</b>	39	<b>▲ 1582</b>
Particles >21µm	ASTM D7647	>160	<b>---</b>	6	<b>▲ 279</b>
Particles >38µm	ASTM D7647	>40	<b>---</b>	0	25
Particles >71µm	ASTM D7647	>10	<b>---</b>	0	3
Oil Cleanliness	ISO 4406 (c)	>--/19/16	<b>---</b>	<b>▲ 24/20/12</b>	<b>▲ 24/22/18</b>

# OIL ANALYSIS REPORT

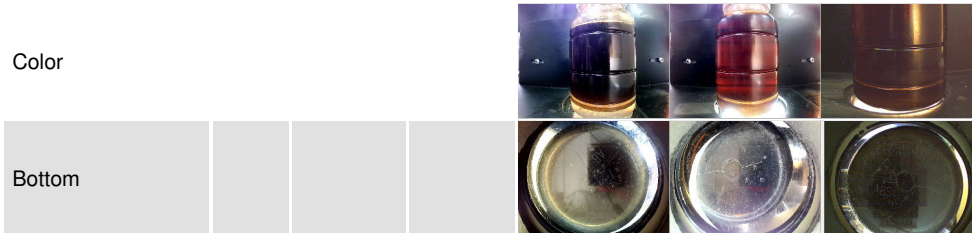


FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	0.25	<b>0.41</b>	0.40	0.40

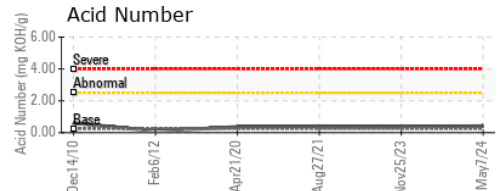
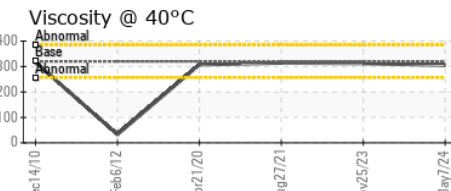
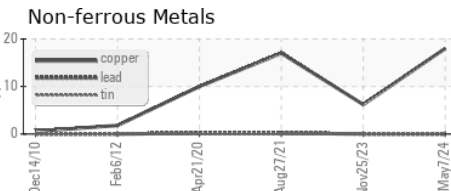
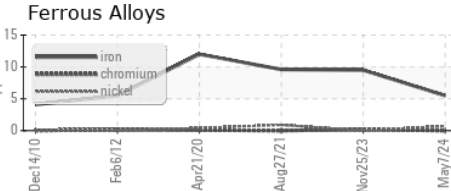
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	LIGHT
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Precipitate	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Silt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Debris	scalar	*Visual	NONE	<b>NONE</b>	NONE	LIGHT
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	>0.1	<b>0.2%</b>	NEG	NEG
Free Water	scalar	*Visual		<b>&gt;10%</b>	NEG	NEG

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	320	<b>305</b>	312	314

SAMPLE IMAGES		method	limit/base	current	history1	history2
---------------	--	--------	------------	---------	----------	----------



## GRAPHS



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : MHI026424 **Received** : 10 Jun 2024  
**Lab Number** : **06204584** **Tested** : 12 Jun 2024  
**Unique Number** : 11072045 **Diagnosed** : 12 Jun 2024 - Angela Borella  
**Test Package** : IND 2 ( Additional Tests: KF, PQ, PrtCount )

**DIAMOND WTG - WHITE DEER SITE - MPS WD**  
 PO BOX 872  
 WHITE DEER, TX  
 US 79097

Contact: WESLEY CAMPBELL  
 wesley.campbell@diamondwtg.com  
 T: (806)883-1051  
 F: (806)883-2004