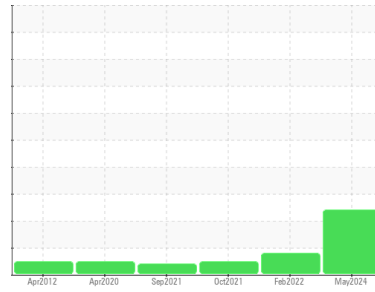


# OIL ANALYSIS REPORT

Sample Rating Trend



**WATER**



Machine Id  
**G-04**  
Component  
**Wind Turbine Gearbox**  
Fluid  
**ROYAL PURPLE SYNFILM GT 320 (45 GAL)**

**DIAGNOSIS**

**Recommendation**

We advise that you check for the source of water entry. Replace filter element and resample at later date. In case already attempted and cleanliness was not improved then proceed to replace oil.

**Wear**

All component wear rates are normal.

**Contamination**

There is a high amount of silt (particulates < 14 microns in size) present in the oil. There is a light concentration of water present in the oil.

**Fluid Condition**

The AN level is acceptable for this fluid. The condition of the oil is acceptable for the time in service.

**SAMPLE INFORMATION**

	method	limit/base	current	history1	history2
Sample Number	Client Info		<b>MHI026453</b>	MHI019352	MHI017106
Sample Date	Client Info		<b>15 May 2024</b>	13 Feb 2022	04 Oct 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>	ABNORMAL	NORMAL

**WEAR METALS**

	method	limit/base	current	history1	history2
PQ	ASTM D8184	>200	<b>21</b>	18	16
Iron	ppm	ASTM D5185m	>200	<b>9</b>	12
Chromium	ppm	ASTM D5185m	>3	<b>0</b>	0
Nickel	ppm	ASTM D5185m	>3	<b>&lt;1</b>	<1
Titanium	ppm	ASTM D5185m	>10	<b>0</b>	0
Silver	ppm	ASTM D5185m		<b>0</b>	0
Aluminum	ppm	ASTM D5185m	>30	<b>0</b>	0
Lead	ppm	ASTM D5185m	>15	<b>0</b>	5
Copper	ppm	ASTM D5185m	>75	<b>15</b>	13
Tin	ppm	ASTM D5185m	>10	<b>&lt;1</b>	<1
Antimony	ppm	ASTM D5185m	>5	<b>---</b>	0
Vanadium	ppm	ASTM D5185m		<b>0</b>	0
Cadmium	ppm	ASTM D5185m		<b>&lt;1</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>&lt;1</b>	2
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	0
Magnesium	ppm	ASTM D5185m	90	<b>2</b>	0
Calcium	ppm	ASTM D5185m		<b>2</b>	0
Phosphorus	ppm	ASTM D5185m		<b>19</b>	42
Zinc	ppm	ASTM D5185m		<b>21</b>	46
Sulfur	ppm	ASTM D5185m		<b>20719</b>	14974

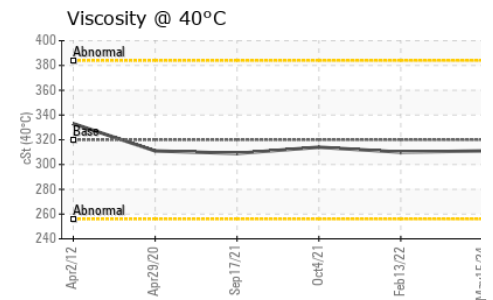
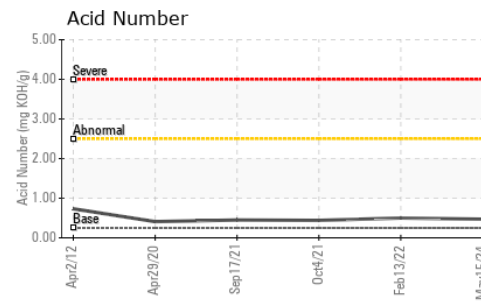
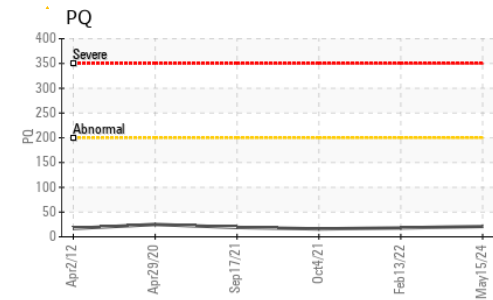
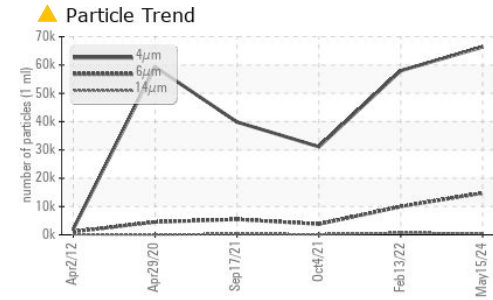
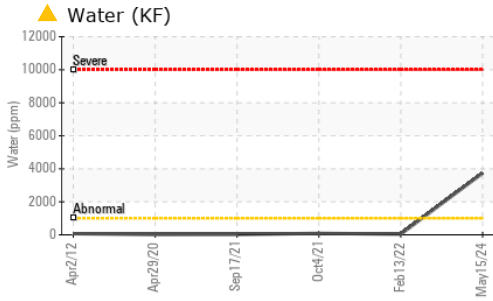
**CONTAMINANTS**

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>+30	<b>23</b>	10
Sodium	ppm	ASTM D5185m		<b>1</b>	0
Potassium	ppm	ASTM D5185m	>20	<b>2</b>	3
Water	%	ASTM D6304	>0.1	<b>▲ 0.374</b>	0.004
ppm Water	ppm	ASTM D6304	>1000	<b>▲ 3740</b>	44.6

**FLUID CLEANLINESS**

	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647		<b>66395</b>	57986	31110
Particles >6µm	ASTM D7647	>5000	<b>▲ 14753</b>	▲ 9985	3793
Particles >14µm	ASTM D7647	>640	<b>478</b>	▲ 710	167
Particles >21µm	ASTM D7647	>160	<b>88</b>	128	27
Particles >38µm	ASTM D7647	>40	<b>4</b>	12	3
Particles >71µm	ASTM D7647	>10	<b>0</b>	0	0
Oil Cleanliness	ISO 4406 (c)	>--/19/16	<b>▲ 23/21/16</b>	▲ 23/20/17	22/19/15

# OIL ANALYSIS REPORT

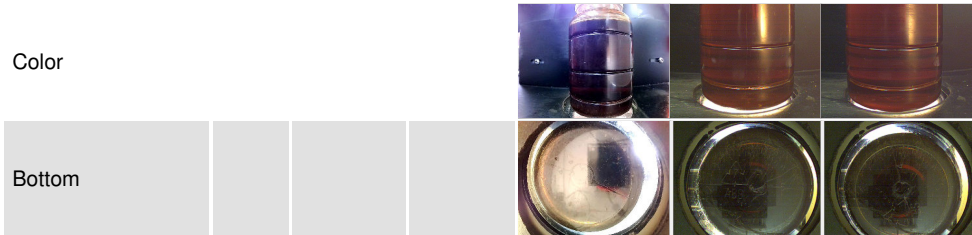


FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	0.25	<b>0.47</b>	0.50	0.44

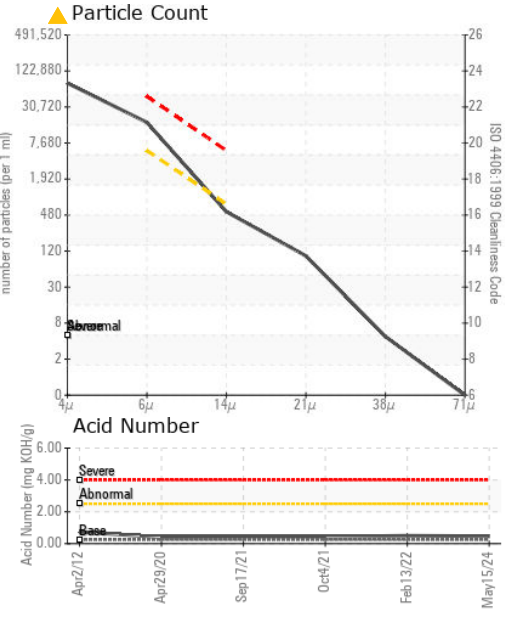
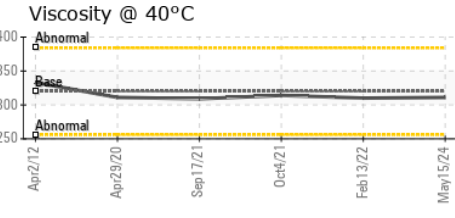
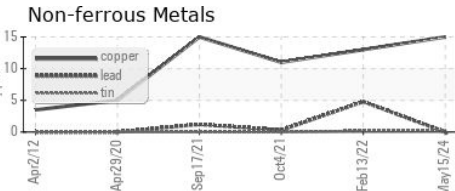
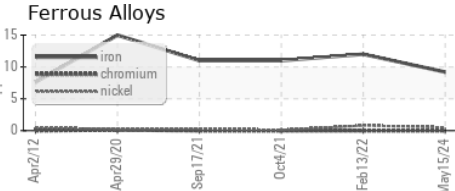
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	LIGHT
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Precipitate	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Silt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Debris	scalar	*Visual	NONE	<b>NONE</b>	VLITE	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	>0.1	<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	320	<b>311</b>	310	314

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



## GRAPHS



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : MHI026453  
**Lab Number** : **06204582**  
**Unique Number** : 11072043  
**Test Package** : IND 2 ( Additional Tests: KF, PQ, PrtCount )

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

To discuss this sample report, contact Customer Service at 1-800-237-1369.

Contact: WESLEY CAMPBELL  
 wesley.campbell@diamondwtg.com

\* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

T: (806)883-1051

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

F: (806)883-2004