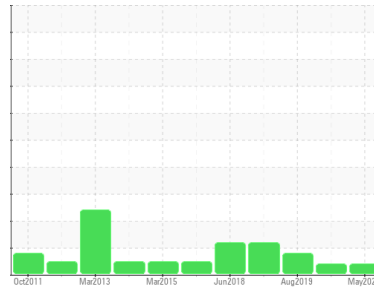


PROBLEM SUMMARY

Area
SWEETWATER
Machine Id
D099
Component
Wind Turbine Gearbox
Fluid
MITSUBISHI Daphne Alpha Winforce (43 GAL)

Sample Rating Trend

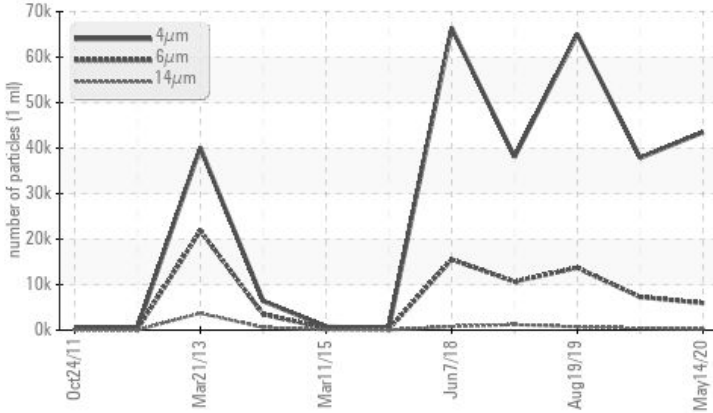


ISO



COMPONENT CONDITION SUMMARY

▲ Particle Trend



RECOMMENDATION

Replace filter element and resample at later date. In case already attempted and cleanliness was not improved then proceed to replace oil.

PROBLEMATIC TEST RESULTS

Sample Status		ABNORMAL	ABNORMAL	ABNORMAL
Particles >6µm	ASTM D7647 >5000	▲ 5958	▲ 7273	▲ 13702
Oil Cleanliness	ISO 4406 (c) >--/19/16	▲ 23/20/15	▲ 22/20/16	▲ 23/21/17

Customer Id: MITROS
Sample No.: MHI018275
Lab Number: 04984693
Test Package: IND 2



To manage this report scan the QR code

To discuss the diagnosis or test data:
Don Baldrige +1
don.b505@comcast.net

To change component or sample information:
Customer Service +1 1-800-237-1369
customerservice@wearcheck.com

RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Change Filter	---	---	?	Replace filter element and resample at later date. In case already attempted and cleanliness was not improved then proceed to replace oil.
Resample	---	---	?	Replace filter element and resample at later date. In case already attempted and cleanliness was not improved then proceed to replace oil.

HISTORICAL DIAGNOSIS

04 Dec 2019 Diag: Jonathan Hester

ISO



Replace filter element and resample at later date. In case already attempted and cleanliness was not improved then proceed to replace oil. All component wear rates are normal. There is a moderate amount of silt (particulates < 14 microns in size) present in the oil. The AN level is acceptable for this fluid.

view report



19 Aug 2019 Diag: Don Baldrige

ISO



Re-sample to verify the actual oil condition. Replace filter elements. Change oil if cleanliness level does not improve after replacing the filter(s). All component wear rates are normal. There is a high amount of silt (particulates < 14 microns in size) present in the oil. The AN level is acceptable for this fluid. The condition of the oil is acceptable for the time in service.

view report



10 Sep 2018 Diag: Don Baldrige

ISO



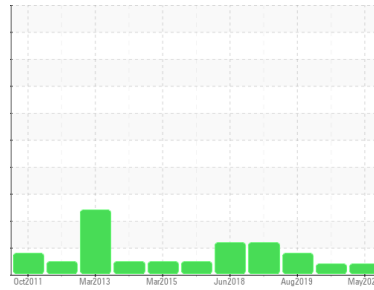
Re-sample to verify the actual oil condition. Replace filter elements. Change oil if cleanliness level does not improve after replacing the filter(s). All component wear rates are normal. There is a high amount of particulates present in the oil. The AN level is acceptable for this fluid. The condition of the oil is acceptable for the time in service.

view report



OIL ANALYSIS REPORT

Sample Rating Trend



ISO



Area
SWEETWATER
 Machine Id
D099

Component
Wind Turbine Gearbox
 Fluid
mitsubishi Daphne Alpha Winforce (43 GAL)

DIAGNOSIS

Recommendation

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 moderate amount of silt (particulates < 14 microns in size) present in the oil.

Fluid Condition

The AN level is acceptable for this fluid.

SAMPLE INFORMATION

method	limit/base	current	history 1	history 2
Sample Number	Client Info	MHI018275	MHI188282	MHI188326
Sample Date	Client Info	14 May 2020	04 Dec 2019	19 Aug 2019
Machine Age	hrs	0	0	64807
Oil Age	hrs	70665	67165	0
Oil Changed	Client Info	N/A	N/A	N/A
Sample Status		ABNORMAL	ABNORMAL	ABNORMAL

WEAR METALS

method	limit/base	current	history 1	history 2		
PQ	ASTM D8184	>200	19	15	13	
Iron	ppm	ASTM D5185m	>200	35	27	26
Chromium	ppm	ASTM D5185m		<1	<1	<1
Nickel	ppm	ASTM D5185m		4	0	<1
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m		0	0	0
Aluminum	ppm	ASTM D5185m		0	<1	0
Lead	ppm	ASTM D5185m		<1	<1	<1
Copper	ppm	ASTM D5185m	>75	20	10	8
Tin	ppm	ASTM D5185m		<1	<1	0
Antimony	ppm	ASTM D5185m		0	0	0
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0

ADDITIVES

method	limit/base	current	history 1	history 2		
Boron	ppm	ASTM D5185m		<1	<1	1
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		<1	<1	0
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m		<1	0	<1
Calcium	ppm	ASTM D5185m		<1	<1	3
Phosphorus	ppm	ASTM D5185m		350	335	354
Zinc	ppm	ASTM D5185m		48	0	5
Sulfur	ppm	ASTM D5185m		4686	4415	4548

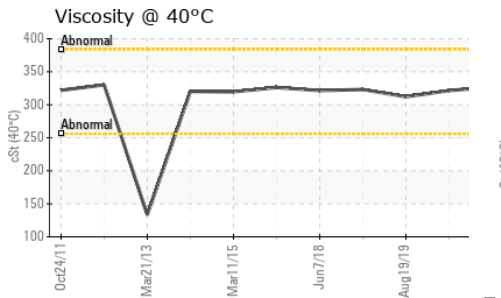
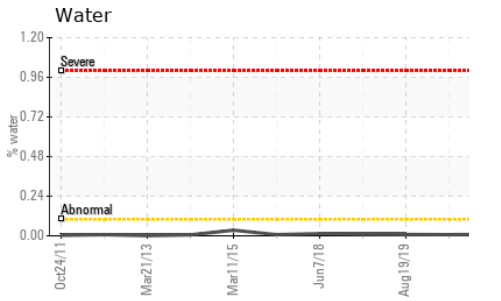
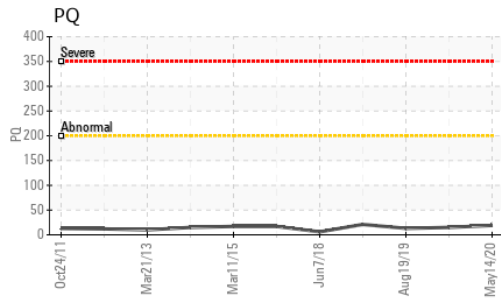
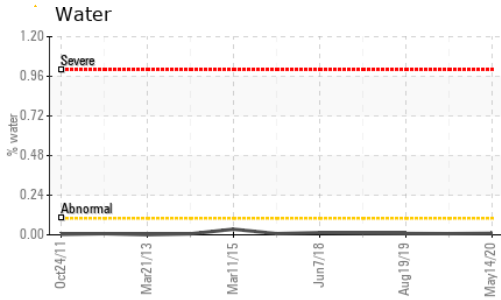
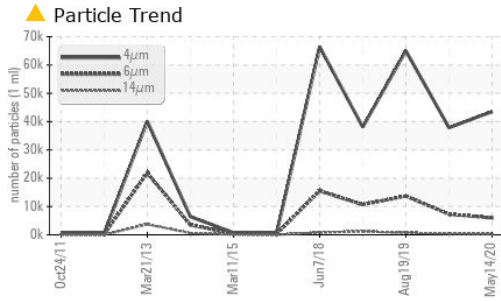
CONTAMINANTS

method	limit/base	current	history 1	history 2		
Silicon	ppm	ASTM D5185m	>+30	2	2	1
Sodium	ppm	ASTM D5185m		<1	0	<1
Potassium	ppm	ASTM D5185m	>20	0	<1	6
Water	%	ASTM D6304	>0.1	0.009	0.007	0.008
ppm Water	ppm	ASTM D6304	>1000	90.2	74.2	84.0

FLUID CLEANLINESS

method	limit/base	current	history 1	history 2	
Particles >4µm	ASTM D7647		43501	37856	65005
Particles >6µm	ASTM D7647	>5000	▲ 5958	▲ 7273	▲ 13702
Particles >14µm	ASTM D7647	>640	202	434	▲ 695
Particles >21µm	ASTM D7647	>160	37	103	138
Particles >38µm	ASTM D7647	>40	10	9	7
Particles >71µm	ASTM D7647	>10	9	0	2
Oil Cleanliness	ISO 4406 (c)	>--/19/16	▲ 23/20/15	▲ 22/20/16	▲ 23/21/17

OIL ANALYSIS REPORT



FLUID DEGRADATION		method	limit/base	current	history 1	history 2
Acid Number (AN)	mg KOH/g	ASTM D8045		1.063	1.075	1.077

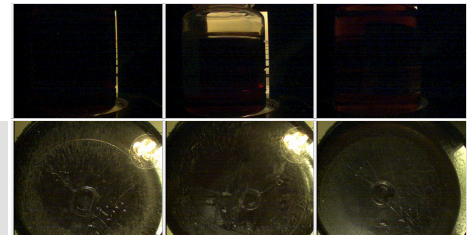
VISUAL		method	limit/base	current	history 1	history 2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	LIGHT	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.1	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

FLUID PROPERTIES		method	limit/base	current	history 1	history 2
Visc @ 40°C	cSt	ASTM D445		327	321.5	312

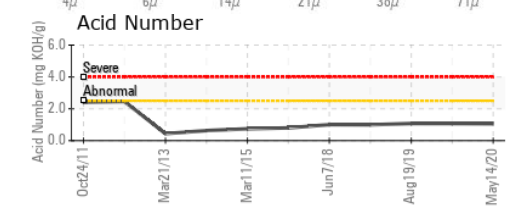
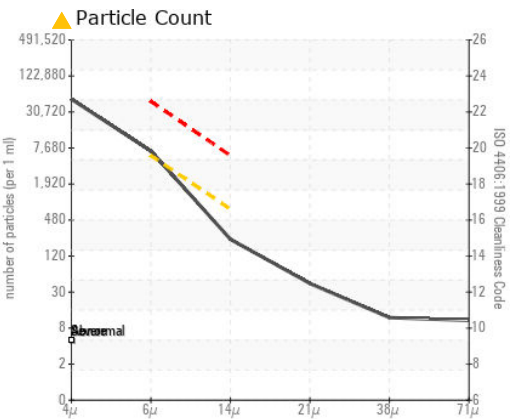
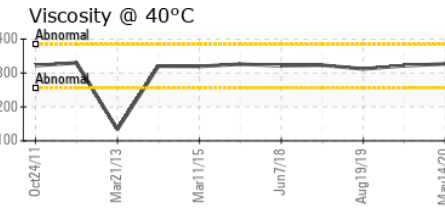
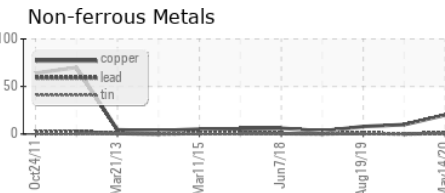
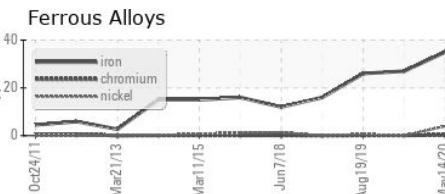
SAMPLE IMAGES		method	limit/base	current	history 1	history 2
---------------	--	--------	------------	---------	-----------	-----------

Color

Bottom



GRAPHS



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
 Sample No. : MH1018275
 Lab Number : 04984693
 Unique Number : 9039840
 Test Package : IND 2 (Additional Tests: KF, PQ, PrtCount)

DIAMOND WTG - SWEETWATER SITE - MPS SW
 7900 FM 608
 ROSCOE, TX
 US 79545
 Contact: MATTHEW MILES
 matthew.miles@diamondwtg.com
 T: (325)288-4333
 F: (325)288-4338

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)