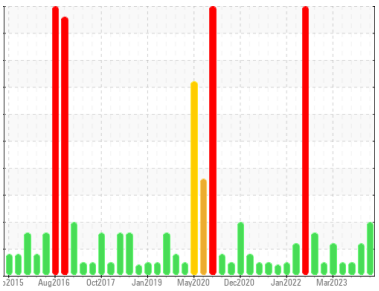
OIL ANALYSIS REPORT

Sample Rating Trend



ISO

Area
System 33 - Gas Compression
Machine Id
Z-3301B Turbine Lube Oil Train B (S/N F-33201)
Component
Turbine
Fluid
MOBIL JET OIL II (750 LTR)

DIAGNOSIS

Recommendation
We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. We recommend an early resample to monitor this condition.

Wear
All component wear rates are normal. The ferrography results are normal indicating no abnormal wear in the system.

Contaminants
There is a moderate amount of particulates (2 to 100 microns in size) present in the oil. The water content is negligible.

Oil 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		**PP**	PP	PP
Sample Date		Client Info		**15 Jun 2024**	04 Apr 2024	24 Sep 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				**ABNORMAL**	ABNORMAL	NORMAL

WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184*		**0**	0	0
Iron	ppm	ASTM D5185(m)	>15	**0**	0	0
Chromium	ppm	ASTM D5185(m)	>4	**0**	0	0
Nickel	ppm	ASTM D5185(m)	>2	**<1**	0	0
Titanium	ppm	ASTM D5185(m)		**0**	0	0
Silver	ppm	ASTM D5185(m)		**<1**	0	<1
Aluminum	ppm	ASTM D5185(m)	>10	**<1**	0	<1
Lead	ppm	ASTM D5185(m)		**0**	0	0
Copper	ppm	ASTM D5185(m)	>5	**<1**	0	<1
Tin	ppm	ASTM D5185(m)	>5	**0**	0	0
Antimony	ppm	ASTM D5185(m)		**0**	0	0
Vanadium	ppm	ASTM D5185(m)		**0**	0	0
Beryllium	ppm	ASTM D5185(m)		**0**	0	0
Cadmium	ppm	ASTM D5185(m)		**0**	0	0

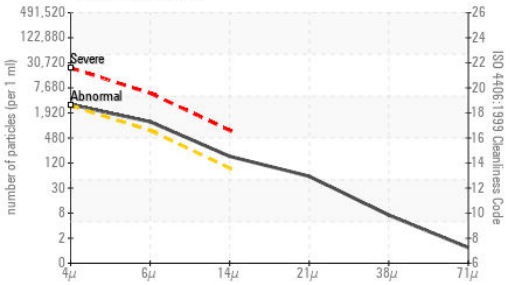
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)		**<1**	<1	<1
Barium	ppm	ASTM D5185(m)		**0**	0	<1
Molybdenum	ppm	ASTM D5185(m)		**0**	0	0
Manganese	ppm	ASTM D5185(m)		**0**	0	0
Magnesium	ppm	ASTM D5185(m)		**0**	0	0
Calcium	ppm	ASTM D5185(m)		**<1**	0	0
Phosphorus	ppm	ASTM D5185(m)		**2218**	2261	2356
Zinc	ppm	ASTM D5185(m)		**<1**	<1	<1
Sulfur	ppm	ASTM D5185(m)		**15**	25	2
Lithium	ppm	ASTM D5185(m)		**<1**	<1	<1

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>15	**0**	0	0
Sodium	ppm	ASTM D5185(m)		**0**	<1	<1
Potassium	ppm	ASTM D5185(m)	>20	**<1**	<1	0
Water	%	ASTM D6304*	>.1	**0.069**	0.038	0.083
ppm Water	ppm	ASTM D6304*	>1000	**698**	383	830.3

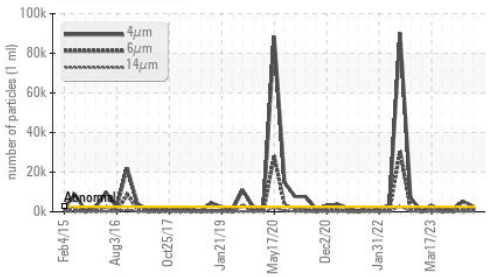
INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	ASTM D7844*		**0.2**	0.1	0.1
Nitration	Abs/cm	ASTM D7624*		**8.3**	8.0	8.5
Sulfation	Abs/.1mm	ASTM D7415*		**172.6**	171.6	164.8

OIL ANALYSIS REPORT

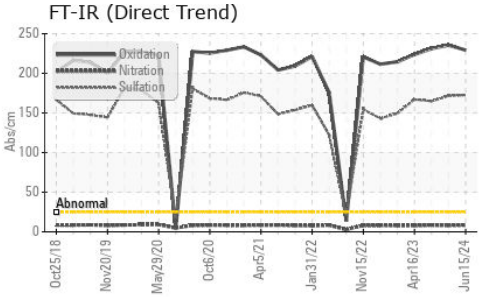
Particle Count



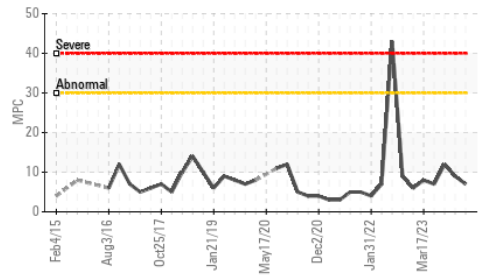
Particle Trend



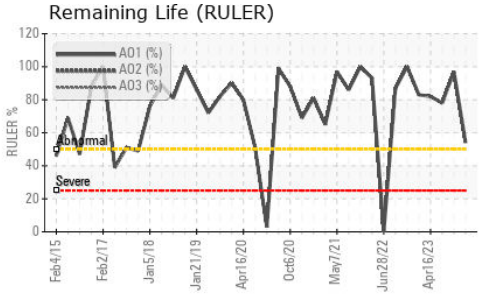
FT-IR (Direct Trend)



Varnish Potential



Remaining Life (RULER)



FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>2500	**2649**	5253	865
Particles >6µm		ASTM D7647	>640	**1031**	1128	210
Particles >14µm		ASTM D7647	>80	**153**	74	20
Particles >21µm		ASTM D7647	>20	**51**	20	6
Particles >38µm		ASTM D7647	>4	**6**	2	1
Particles >71µm		ASTM D7647	>3	**1**	0	0
Oil Cleanliness		ISO 4406 (c)	>18/16/13	**19/17/14**	20/17/13	17/15/11

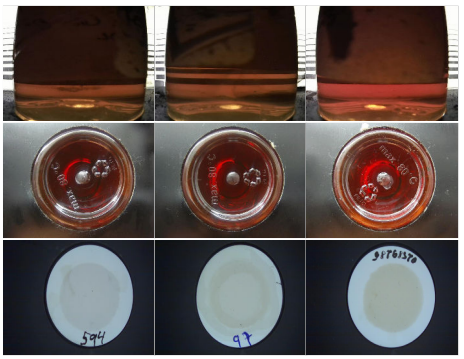
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	ASTM D7414*		**229.3**	235.5	231.2
Acid Number (AN)	mg KOH/g	ASTM D974*	0.03	**0.07**	0.07	0.13
Anti-Oxidant 1	%	ASTM D6971*	<25	**54**	97	78
MPC Varnish Potential	Scale	ASTM D7843(m)*	>15	**7**	9	12

VISUAL		method	limit/base	current	history1	history2
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**	NONE	NONE
Sand/Dirt	scalar	Visual*	NONE	**VLITE**	NONE	NONE
Appearance	scalar	Visual*	NORML	**NORML**	NORML	NORML
Odor	scalar	Visual*	NORML	**NORML**	NORML	NORML
Emulsified Water	scalar	Visual*	>.1	**NEG**	NEG	NEG
Free Water	scalar	Visual*		**NEG**	NEG	NEG

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	27.6	**29.3**	25.9	25.6
Visc @ 100°C	cSt	ASTM D7279(m)	5.1	**5.1**	5.1	5.1
Viscosity Index (VI)	Scale	ASTM D2270*		**101**	127	130

SEDIMENT		method	limit/base	current	history1	history2
Pentane Insolubles	%	ASTM D893(m)*		**0.042**	---	---

SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					
MPC					



ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PP
Lab Number : 02644594
Unique Number : 5802133
Test Package : AOM 2 (Additional Tests: COC Flash, PntInsol)

Received : 28 Jun 2024
Tested : 05 Jul 2024
Diagnosed : 05 Jul 2024 - Bill Quesnel

To discuss this sample report, contact Customer Service at 1-800-268-2131.
Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab.
Validity of results and interpretation are based on the sample and information as supplied.

HIBERNIA MGMT & DEVELOPMENT CO. LTD
SUITE 1000,, 100 NEW GOWER STREET
ST.JOHNS, NL
CA A1C 6K3
Contact: Sam Nash
samantha.m.nash@exxonmobil.com
T:
F: (709)722-3766

Report Id: HIBSTJ [WCAMIS] 02644594 (Generated: 07/05/2024 18:14:01) Rev: 1

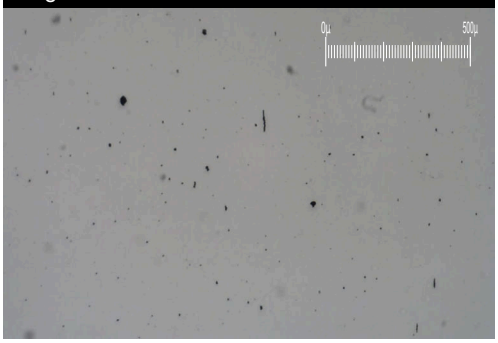
Submitted By: ?

FERROGRAPHY REPORT

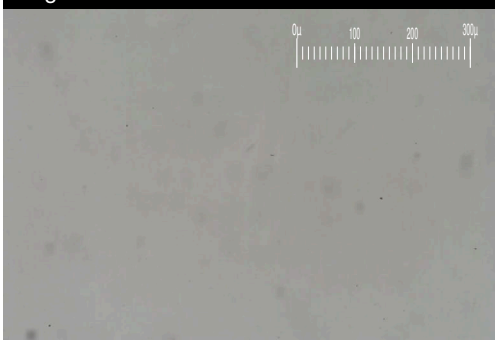
Area
System 33 - Gas Compression
Machine Id
Z-3301B Turbine Lube Oil Train B (S/N F-33201)
Component
Turbine
Fluid
MOBIL JET OIL II (750 LTR)

Magn: 200x Illum: BC

Magn: 50x Illum: RW



Magn: 100x Illum: RW

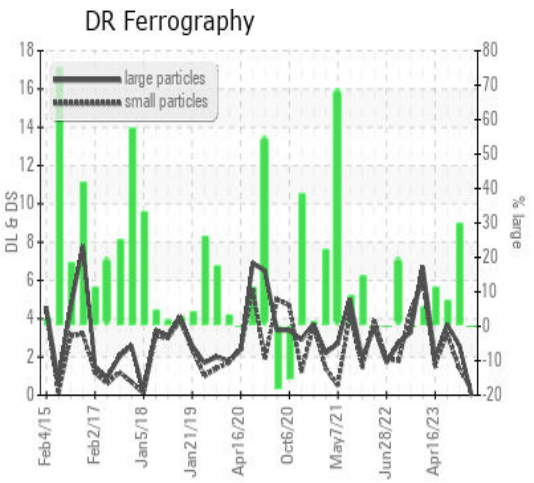


DR-FERROGRAPHY		method	limit/base	current	history1	history2
Large Particles		DR-Ferr*		**0.0**	2.6	3.7
Small Particles		DR-Ferr*		**0.3**	1.4	3.2
Total Particles		DR-Ferr*	>---	**0.3**	4	6.9
Large Particles Percentage	%	DR-Ferr*		**0**	30	7.2
Severity Index		DR-Ferr*		**0**	3	2

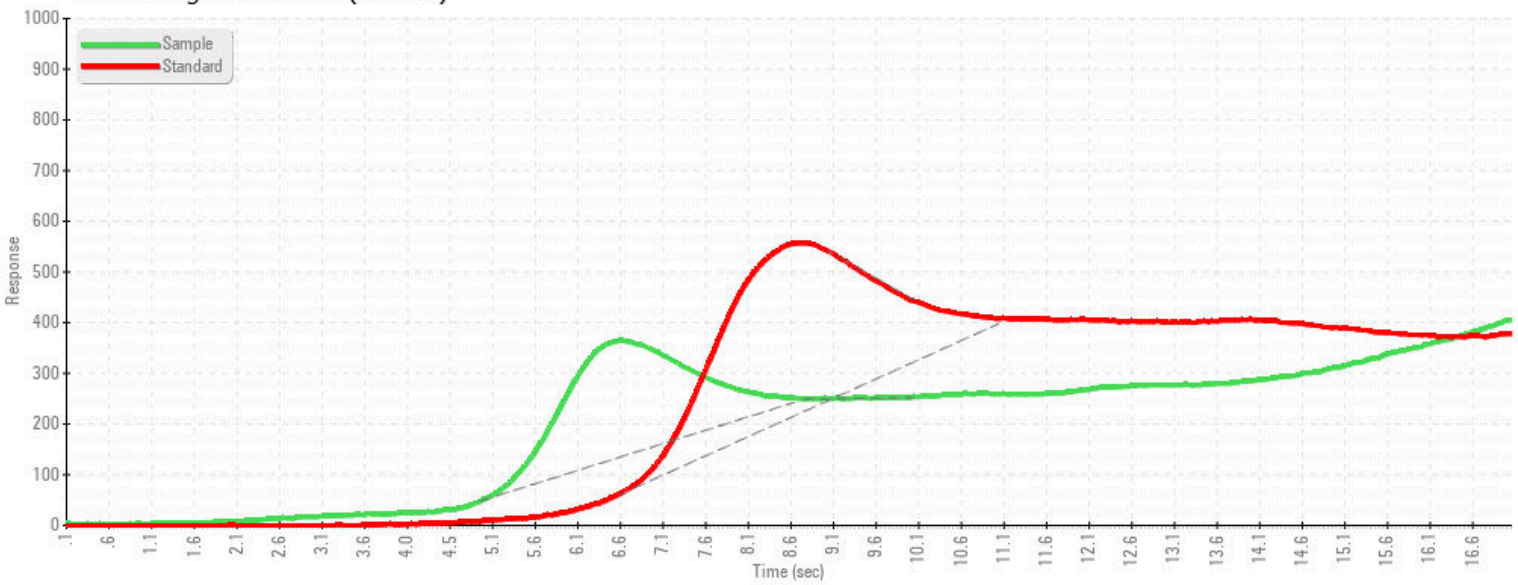
FERROGRAPHY		method	limit/base	current	history1	history2
Ferrous Rubbing	Scale 0-10	ASTM D7684*		**2**	2	1
Ferrous Sliding	Scale 0-10	ASTM D7684*				
Ferrous Cutting	Scale 0-10	ASTM D7684*				
Ferrous Rolling	Scale 0-10	ASTM D7684*		**1**	1	1
Ferrous Break-in	Scale 0-10	ASTM D7684*				
Ferrous Spheres	Scale 0-10	ASTM D7684*			1	
Ferrous Black Oxides	Scale 0-10	ASTM D7684*			2	
Ferrous Red Oxides	Scale 0-10	ASTM D7684*				
Ferrous Corrosive	Scale 0-10	ASTM D7684*				
Ferrous Other	Scale 0-10	ASTM D7684*				
Nonferrous Rubbing	Scale 0-10	ASTM D7684*				
Nonferrous Sliding	Scale 0-10	ASTM D7684*				
Nonferrous Cutting	Scale 0-10	ASTM D7684*				
Nonferrous Rolling	Scale 0-10	ASTM D7684*				
Nonferrous Other	Scale 0-10	ASTM D7684*				
Carbonaceous Material	Scale 0-10	ASTM D7684*				
Lubricant Degradation	Scale 0-10	ASTM D7684*				
Sand/Dirt	Scale 0-10	ASTM D7684*		**1**	2	1
Fibres	Scale 0-10	ASTM D7684*				
Spheres	Scale 0-10	ASTM D7684*				
Other	Scale 0-10	ASTM D7684*		**1**		1

WEAR

All component wear rates are normal. The ferrography results are normal indicating no abnormal wear in the system.



Remaining Useful Life (RULER)



MPC (Varnish Test)

Sample Color & Clarity