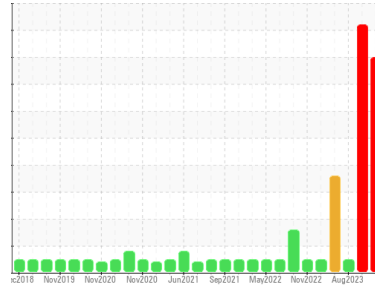




PROBLEM SUMMARY

Sample Rating Trend

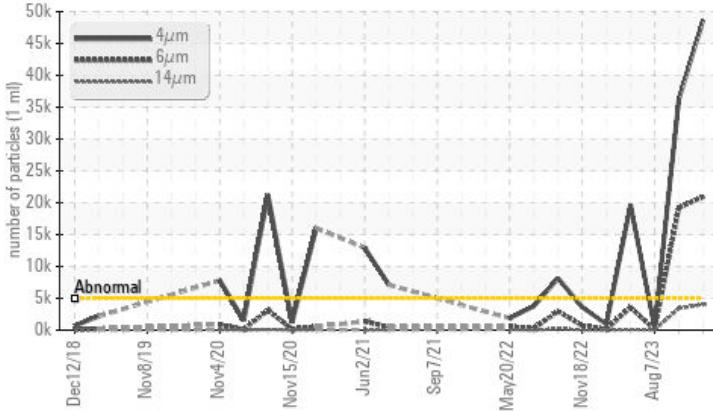
ISO



Area
Water Injection
 Machine Id
V684205 POOL 1 WATER INJECTION PUMP SKID #1
 Component
Lube System
 Fluid
MOBIL DTE OIL LIGHT (--- GAL)

COMPONENT CONDITION SUMMARY

▲ Particle Trend



RECOMMENDATION

We advise that you check all areas where contaminants can enter the system. We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. Resample in 30-45 days to monitor this situation. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.

PROBLEMATIC TEST RESULTS

Sample Status			SEVERE	SEVERE	NORMAL
Particles >4µm	ASTM D7647	>5000	▲ 48656	▲ 36271	428
Particles >6µm	ASTM D7647	>1300	▲ 20914	▲ 19231	85
Particles >14µm	ASTM D7647	>160	▲ 4014	▲ 3413	10
Particles >21µm	ASTM D7647	>40	▲ 1003	▲ 1317	2
Oil Cleanliness	ISO 4406 (c)	>19/17/14	▲ 23/22/19	▲ 22/21/19	16/14/10

Customer Id: EXXSTJ
 Sample No.: PP13963659
 Lab Number: 02625315
 Test Package: MAR 2



To manage this report scan the QR code

To discuss the diagnosis or test data:
 Wes Davis +1 905-569-8600 x223
wesd@wearcheck.ca

To change component or sample information:
 Gloria Gonzalez +1 (289)291-4643 x4643
gloria.gonzalez@wearcheck.com

RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Change Filter	---	---	?	We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid.
Resample	---	---	?	Resample in 30-45 days to monitor this situation.
Information Required	---	---	?	NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.
Check Breathers	---	---	?	The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather.
Check Dirt Access	---	---	?	We advise that you check all areas where contaminants can enter the system.
Filter Fluid	---	---	?	We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid.

HISTORICAL DIAGNOSIS

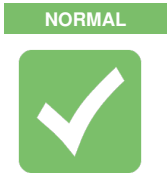


ISO

14 Oct 2023 Diag: Wes Davis

We advise that you check all areas where contaminants can enter the system. We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. Resample in 30-45 days to monitor this situation. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. All component wear rates are normal. There is a high amount of particulates (2 to 100 microns in size) present in the oil. The water content is negligible. The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

view report



NORMAL

07 Aug 2023 Diag: Wes Davis

Resample at the next service interval to monitor. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. All component wear rates are normal. The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report



WATER

11 May 2023 Diag: Kevin Marson

We advise that you check for the source of water entry. Check seals and/or filters for points of contaminant entry. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. We advise that you use off-line filtration with water adsorbent filters to attempt to remove the water from this oil. We recommend you service the filters on this component. We recommend an early resample to monitor this condition. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. All component wear rates are normal. There is a moderate amount of silt (particulates < 14 microns in size) present in the oil. There is a moderate concentration of water present in the oil. The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

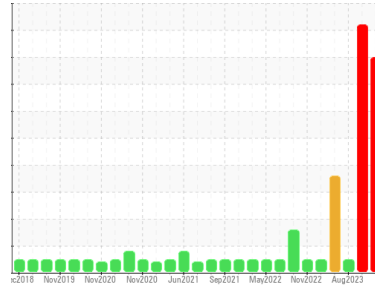
view report





OIL ANALYSIS REPORT

Sample Rating Trend



ISO



Area
Water Injection
 Machine Id
V684205 POOL 1 WATER INJECTION PUMP SKID #1
 Component
Lube System
 Fluid
MOBIL DTE OIL LIGHT (--- GAL)

DIAGNOSIS

Recommendation

We advise that you check all areas where contaminants can enter the system. We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. Resample in 30-45 days to monitor this situation. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.

Wear

All component wear rates are normal.

Contamination

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

Fluid Condition

The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		PP13963659	PP13915532	PP13899819
Sample Date	Client Info		11 Feb 2024	14 Oct 2023	07 Aug 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			SEVERE	SEVERE	NORMAL

WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m) >20	<1	<1	<1
Chromium	ppm	ASTM D5185(m) >10	0	0	0
Nickel	ppm	ASTM D5185(m) >10	0	<1	<1
Titanium	ppm	ASTM D5185(m)	0	0	0
Silver	ppm	ASTM D5185(m)	0	<1	0
Aluminum	ppm	ASTM D5185(m) >10	0	<1	<1
Lead	ppm	ASTM D5185(m) >20	0	<1	<1
Copper	ppm	ASTM D5185(m) >20	2	3	3
Tin	ppm	ASTM D5185(m) >10	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)	0	<1	0
Barium	ppm	ASTM D5185(m)	<1	0	0
Molybdenum	ppm	ASTM D5185(m)	0	0	0
Manganese	ppm	ASTM D5185(m)	0	0	0
Magnesium	ppm	ASTM D5185(m)	3	8	6
Calcium	ppm	ASTM D5185(m)	<1	2	<1
Phosphorus	ppm	ASTM D5185(m)	99	102	106
Zinc	ppm	ASTM D5185(m)	43	45	46
Sulfur	ppm	ASTM D5185(m)	599	639	643
Lithium	ppm	ASTM D5185(m)	<1	<1	<1

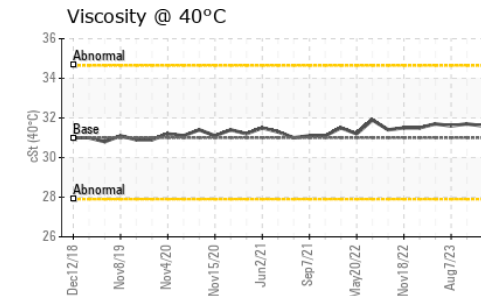
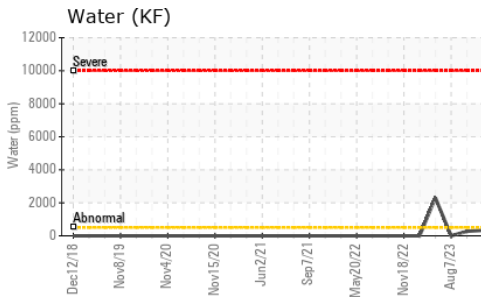
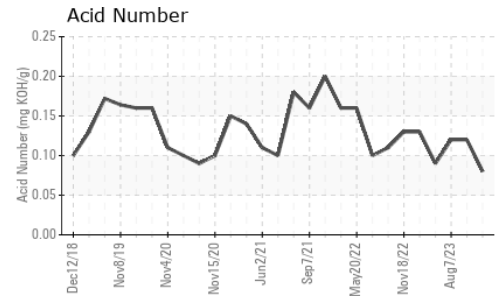
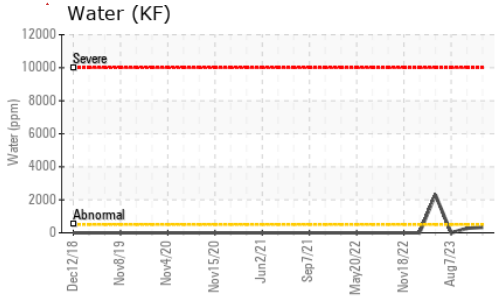
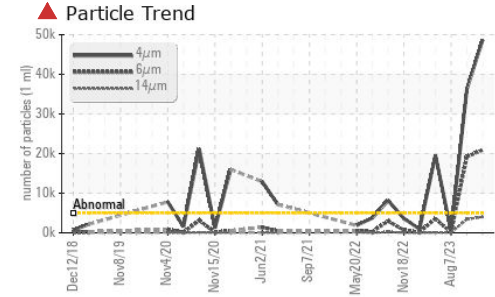
CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m) >15	0	0	0
Sodium	ppm	ASTM D5185(m)	4	23	0
Potassium	ppm	ASTM D5185(m) >20	<1	<1	<1
Water	%	ASTM D6304* >0.05	0.033	0.027	---
ppm Water	ppm	ASTM D6304* >500	334	272.2	---

FLUID CLEANLINESS

	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>5000	▲ 48656	▲ 36271	428
Particles >6µm	ASTM D7647	>1300	▲ 20914	▲ 19231	85
Particles >14µm	ASTM D7647	>160	▲ 4014	▲ 3413	10
Particles >21µm	ASTM D7647	>40	▲ 1003	▲ 1317	2
Particles >38µm	ASTM D7647	>10	● 17	▲ 104	0
Particles >71µm	ASTM D7647	>3	1	1	0
Oil Cleanliness	ISO 4406 (c)	>19/17/14	▲ 23/22/19	▲ 22/21/19	16/14/10

OIL ANALYSIS REPORT



FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*		0.08	0.12	0.12

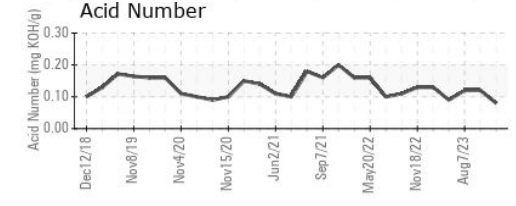
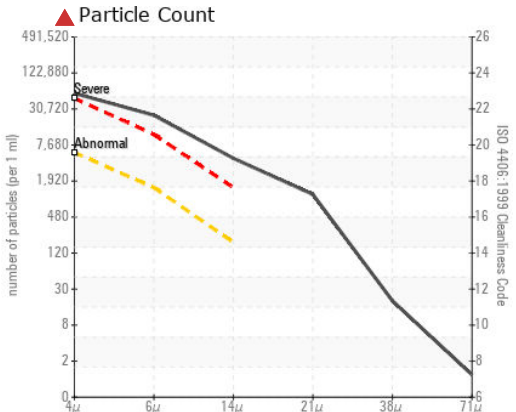
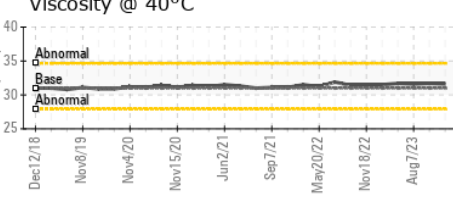
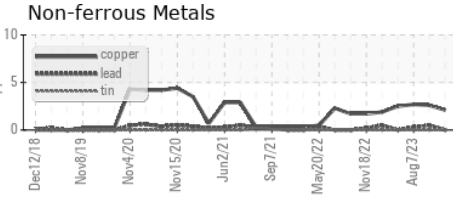
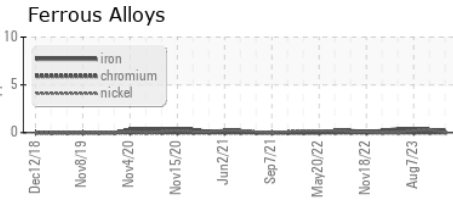
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	NONE	NONE	NONE
Yellow Metal	scalar	Visual*	NONE	NONE	NONE	NONE
Precipitate	scalar	Visual*	NONE	NONE	NONE	NONE
Silt	scalar	Visual*	NONE	VLITE	NONE	NONE
Debris	scalar	Visual*	NONE	VLITE	NONE	NONE
Sand/Dirt	scalar	Visual*	NONE	NONE	NONE	NONE
Appearance	scalar	Visual*	NORML	NORML	NORML	NORML
Odor	scalar	Visual*	NORML	NORML	NORML	NORML
Emulsified Water	scalar	Visual*	>0.05	.2%	.2%	NEG
Free Water	scalar	Visual*		NEG	NEG	NEG

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	31	31.6	31.7	31.6

SAMPLE IMAGES



GRAPHS



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PP13963659 **Received** : 28 Mar 2024
Lab Number : **02625315** **Tested** : 02 Apr 2024
Unique Number : 5750434 **Diagnosed** : 02 Apr 2024 - Wes Davis
Test Package : MAR 2 (Additional Tests: KF, TAN Man)

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 St. John's, NL
 CA A1C 6K3
 Contact: Liam Maher
 liam.m.maher@exxonmobil.com
 T: (709)273-3729
 F:

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.