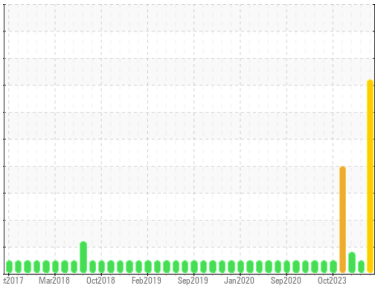
PROBLEM SUMMARY

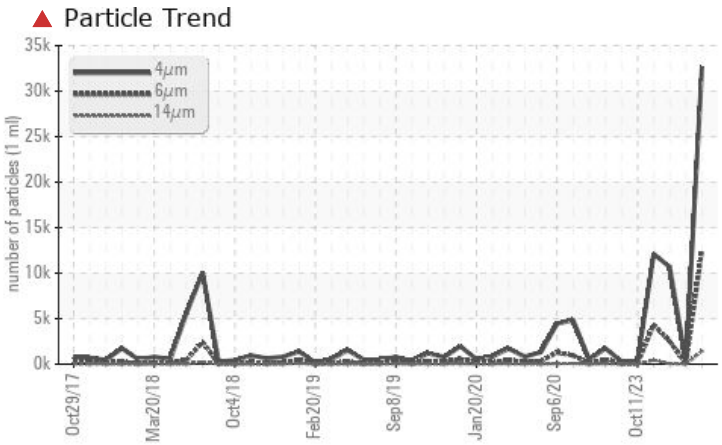
Sample Rating Trend



ISO

Area
Water Injection [450273732]
Machine Id
Pump Sea Water Injection (A) - Lube System (S/N Sample Tag PA-29002A-S1)
Component
Pump
Fluid
PETRO CANADA TURBOFLO 46 (1264 LTR)

COMPONENT CONDITION SUMMARY



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.

PROBLEMATIC TEST RESULTS

Sample Status				SEVERE	NORMAL	ABNORMAL
Particles >6µm		ASTM D7647	>1300	▲ **12584**	53	▲ 2501
Particles >14µm		ASTM D7647	>160	▲ **1447**	6	46
Particles >21µm		ASTM D7647	>40	▲ **418**	2	9
Particles >38µm		ASTM D7647	>10	▲ **41**	1	1
Oil Cleanliness		ISO 4406 (c)	>--/17/14	▲ **22/21/18**	15/13/10	▲ 21/19/13

Customer Id: TERHAM
Sample No.: PC
Lab Number: 02631146
Test Package: MAR 2

To manage this report scan the QR code

To discuss the diagnosis or test data:
Kevin Marson +1 (289)291-4644 x4644
Kevin.Marson@wearcheck.com

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.
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

NORMAL

20 Feb 2024 Diag: Kevin Marson

Resample at the next service interval to monitor.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

ISO

08 Feb 2024 Diag: Bill Quesnel

view report

WATER

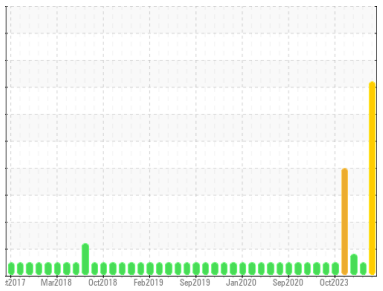
18 Jan 2024 Diag: Kevin Marson

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 follow the water drain-off procedure for this component. 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.All component wear rates are normal. There is a moderate amount of particulates (2 to 100 microns in size) present in the oil. Free water present. The system cleanliness is above the acceptable limit for the target ISO 4406 cleanliness code. 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 [450273732]
Machine Id
Pump Sea Water Injection (A) - Lube System (S/N Sample Tag PA-29002A-S1)
Component
Pump
Fluid
PETRO CANADA TURBOFLO 46 (1264 LTR)

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.

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 system cleanliness code is much higher than the acceptable limit for the target ISO 4406 cleanliness code.

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		**PC**	PC	PC0076390
Sample Date		Client Info		**23 Mar 2024**	20 Feb 2024	08 Feb 2024
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**	NORMAL	ABNORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Water		WC Method	>.1	**NEG**	NEG	NEG

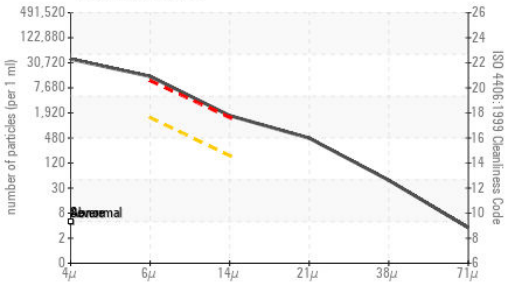
WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184*		**0**	0	0
Iron	ppm	ASTM D5185(m)	>75	**0**	0	0
Chromium	ppm	ASTM D5185(m)	>5	**0**	0	0
Nickel	ppm	ASTM D5185(m)		**0**	<1	0
Titanium	ppm	ASTM D5185(m)		**0**	0	0
Silver	ppm	ASTM D5185(m)		**0**	0	0
Aluminum	ppm	ASTM D5185(m)	>5	**0**	<1	<1
Lead	ppm	ASTM D5185(m)	>10	**0**	<1	0
Copper	ppm	ASTM D5185(m)	>15	**<1**	<1	<1
Tin	ppm	ASTM D5185(m)		**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	0
Barium	ppm	ASTM D5185(m)	0	**0**	0	0
Molybdenum	ppm	ASTM D5185(m)	0	**0**	0	0
Manganese	ppm	ASTM D5185(m)	0	**0**	0	0
Magnesium	ppm	ASTM D5185(m)	0	**0**	0	0
Calcium	ppm	ASTM D5185(m)	0	**0**	0	0
Phosphorus	ppm	ASTM D5185(m)	110	**147**	153	154
Zinc	ppm	ASTM D5185(m)	0.0	**<1**	<1	<1
Sulfur	ppm	ASTM D5185(m)		**184**	188	186
Lithium	ppm	ASTM D5185(m)		**<1**	<1	<1

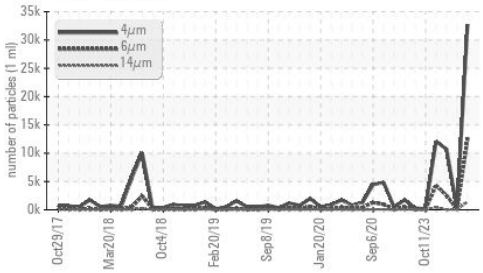
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>20	**1**	2	2
Sodium	ppm	ASTM D5185(m)		**0**	0	0
Potassium	ppm	ASTM D5185(m)	>20	**0**	<1	<1

OIL ANALYSIS REPORT

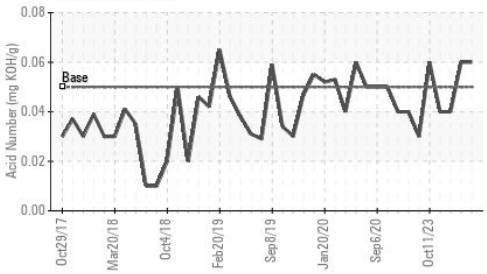
Particle Count



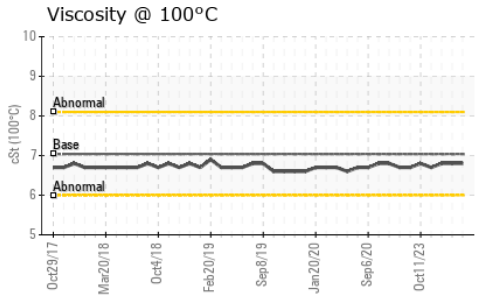
Particle Trend



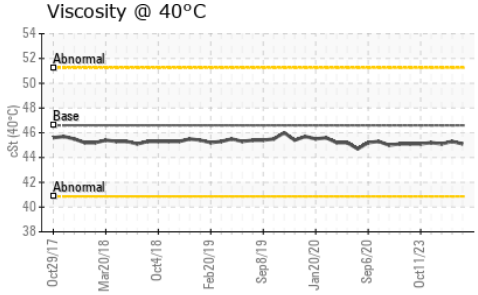
Acid Number



Viscosity @ 100°C



Viscosity @ 40°C



FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647		**32667**	190	10666
Particles >6µm		ASTM D7647	>1300	▲ **12584**	53	▲ 2501
Particles >14µm		ASTM D7647	>160	▲ **1447**	6	46
Particles >21µm		ASTM D7647	>40	▲ **418**	2	9
Particles >38µm		ASTM D7647	>10	▲ **41**	1	1
Particles >71µm		ASTM D7647	>3	**3**	1	1
Oil Cleanliness		ISO 4406 (c)	>--/17/14	▲ **22/21/18**	15/13/10	▲ 21/19/13

FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	0.05	**0.06**	0.06	0.04

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	**NONE**	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)	46.6	**45.1**	45.3	45.1
Visc @ 100°C	cSt	ASTM D7279(m)	7.04	**6.8**	6.8	6.8
Viscosity Index (VI)	Scale	ASTM D2270*	107	**104**	104	104

SAMPLE IMAGES						
Color						
Bottom						

ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PC
Lab Number : 02631146
Unique Number : 5772299
Test Package : MAR 2 (Additional Tests: KV100, PQ, TAN Man, VI)
Received : 24 Apr 2024
Tested : 25 Apr 2024
Diagnosed : 25 Apr 2024 - Kevin Marson

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.

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