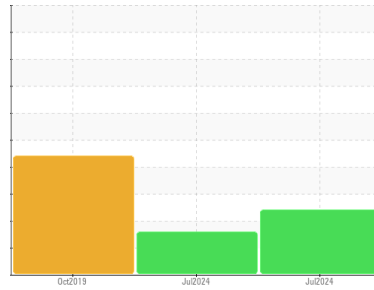


PROBLEM SUMMARY

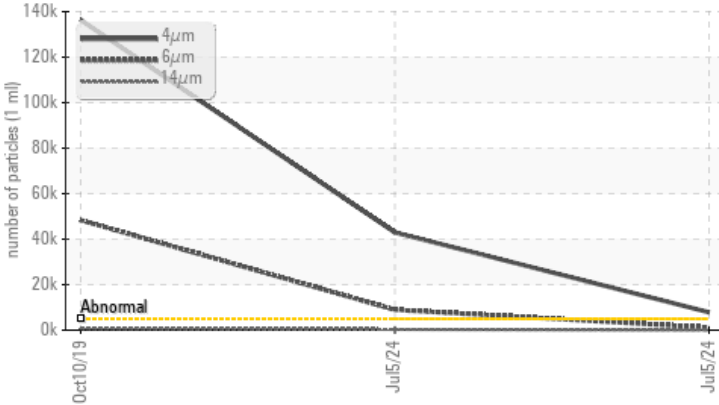
Area
1851
Machine Id
1851-5412-8004 - FRESH WATER SUPPLY PUMP
Component
Pump
Fluid
PETRO CANADA TURBOFLO R&O 32 (--- GAL)

Sample Rating Trend



COMPONENT CONDITION SUMMARY

▲ Particle Trend



RECOMMENDATION

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 recommend you service the filters on this component. 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	ABNORMAL	SEVERE
Particles >4µm	ASTM D7647	>5000	▲ 42952	● 7840	▲ 136328
Particles >6µm	ASTM D7647	>1300	▲ 8940	● 1124	▲ 48344
Oil Cleanliness	ISO 4406 (c)	>19/17/14	▲ 23/20/15	● 20/17/13	▲ 24/23/17

Customer Id: INCVOS
Sample No.: PC0057842
Lab Number: 02648673
Test Package: IND 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 recommend you service the filters on this component.
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 Seals	---	---	?	Check seals and/or filters for points of contaminant entry.

HISTORICAL DIAGNOSIS

05 Jul 2024 Diag:

VISCOSITY



view report



10 Oct 2019 Diag: Bill Quesnel

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. Particles >6µm are severely high. Particles >4µm are severely high. Particles >14µm are abnormally high. Particles >21µm are abnormally high. Viscosity of sample indicates oil is within ISO 46 range, advise investigate. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

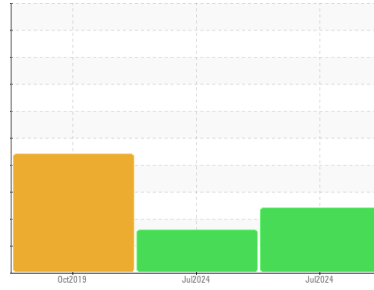
ISO



view report



Area
1851
Machine Id
1851-5412-8004 - FRESH WATER SUPPLY PUMP
Component
Pump
Fluid
PETRO CANADA TURBOFLO R&O 32 (--- GAL)



DIAGNOSIS

Recommendation

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 recommend you service the filters on this component. 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 silt (particulates < 14 microns in size) present in the oil.

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			PC0057842	PC0057847	PC349842
Sample Date	Client Info			05 Jul 2024	05 Jul 2024	10 Oct 2019
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	ABNORMAL	SEVERE

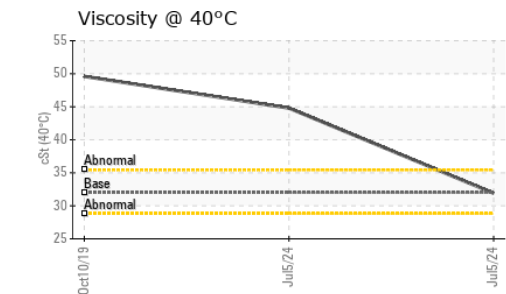
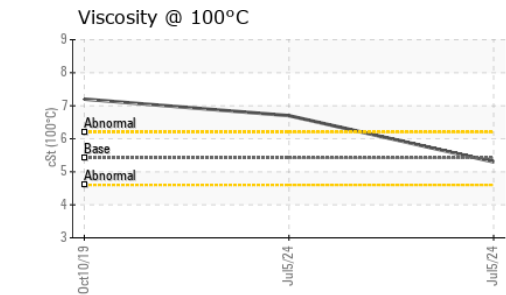
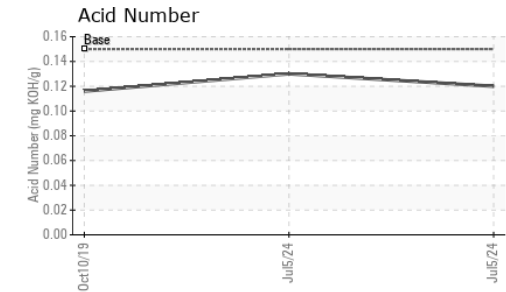
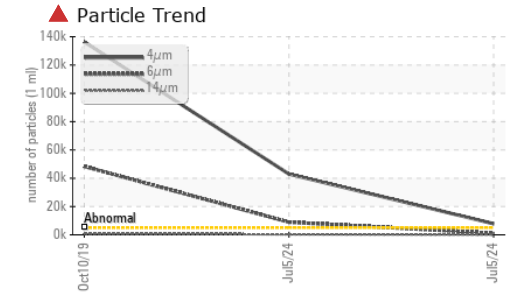
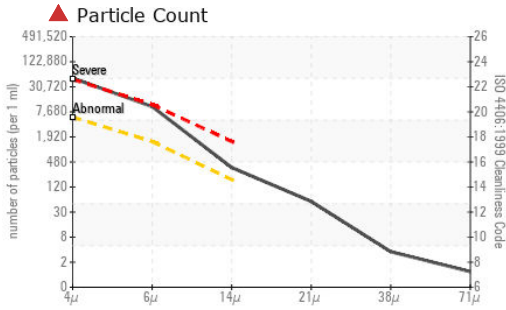
CONTAMINATION		method	limit/base	current	history1	history2
Water	WC Method		>.1	NEG	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184*		0	0	8
Iron	ppm	ASTM D5185(m)	>90	<1	1	3
Chromium	ppm	ASTM D5185(m)	>5	0	0	0
Nickel	ppm	ASTM D5185(m)	>5	<1	0	<1
Titanium	ppm	ASTM D5185(m)	>3	0	0	<1
Silver	ppm	ASTM D5185(m)	>3	0	0	<1
Aluminum	ppm	ASTM D5185(m)	>7	<1	0	<1
Lead	ppm	ASTM D5185(m)	>12	0	0	0
Copper	ppm	ASTM D5185(m)	>30	<1	<1	<1
Tin	ppm	ASTM D5185(m)	>9	0	0	0
Antimony	ppm	ASTM D5185(m)		0	0	<1
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	<1	<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)	0	<1	4	4
Phosphorus	ppm	ASTM D5185(m)	4	2	17	19
Zinc	ppm	ASTM D5185(m)	0	3	9	3
Sulfur	ppm	ASTM D5185(m)		12	304	471
Lithium	ppm	ASTM D5185(m)		<1	<1	<1

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>60	0	0	0
Sodium	ppm	ASTM D5185(m)		0	1	0
Potassium	ppm	ASTM D5185(m)	>20	0	<1	<1

OIL ANALYSIS REPORT



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PC0057842
Lab Number : 02648673
Unique Number : 5814225
Test Package : IND 2 (Additional Tests: KV100, PQ, PrtCount, TAN Man, VI)

Received : 18 Jul 2024
Tested : 19 Jul 2024
Diagnosed : 19 Jul 2024 - Wes Davis

Vale - Voisey's Bay
 Voisey's Bay Mine Site, P.O. Box 7001, Str. C Happy Valley
 Goose Bay, NL
 CA A0P 1C0
 Contact: Robert Feltham
 robert.feltham@vale.com

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.

T:
F: x

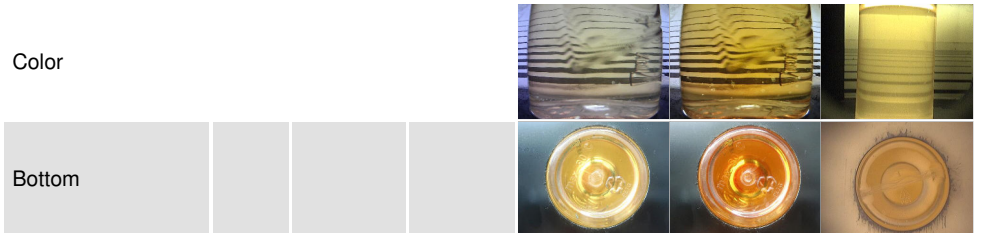
FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>5000	▲ 42952	● 7840	▲ 136328	
Particles >6µm	ASTM D7647	>1300	▲ 8940	● 1124	▲ 48344	
Particles >14µm	ASTM D7647	>160	● 311	● 45	▲ 771	
Particles >21µm	ASTM D7647	>40	● 48	● 13	▲ 158	
Particles >38µm	ASTM D7647	>10	● 3	● 2	● 3	
Particles >71µm	ASTM D7647	>3	● 1	● 0	● 0	
Oil Cleanliness	ISO 4406 (c)	>19/17/14	▲ 23/20/15	● 20/17/13	▲ 24/23/17	

FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	0.15	0.12	0.13	0.116

VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	VLITE	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)	32.0	31.9	▲ 44.8	▲ 49.6
Visc @ 100°C	cSt	ASTM D7279(m)	5.42	5.3	▲ 6.7	▲ 7.2
Viscosity Index (VI)	Scale	ASTM D2270*	103	96	102	103

SAMPLE IMAGES		method	limit/base	current	history1	history2
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Color

Bottom