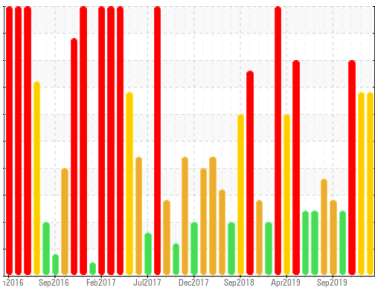
LUBE 360 DIAGNOSTICS

PROBLEM SUMMARY

Sample Rating Trend

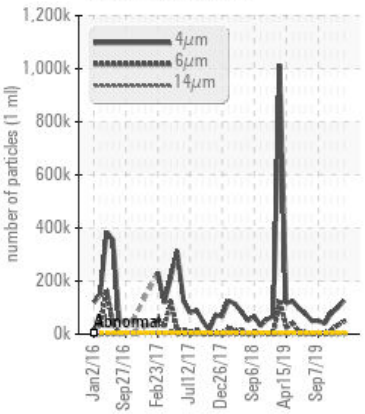


ISO

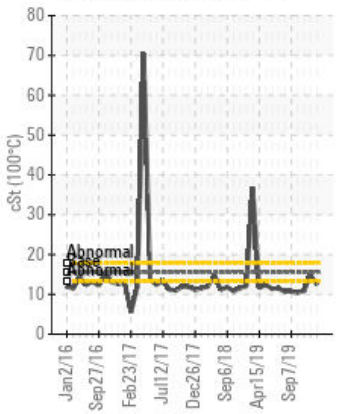
Area
Water Injection [450328013]
Machine Id
Pump - Glycol Circulation (A) (S/N Sample Tag PA-38002A)
Component
Reciprocating Pump - Bearings/Crossheads
Fluid
PETRO CANADA DURON HP 15W40 (15 LTR)

COMPONENT CONDITION SUMMARY

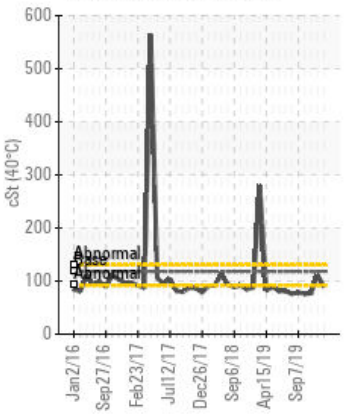
▲ Particle Trend



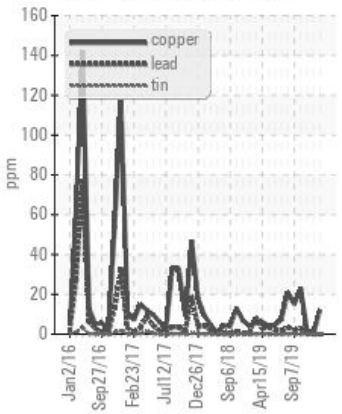
▲ Viscosity @ 100°C



▲ Viscosity @ 40°C



Non-ferrous Metals



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**	SEVERE	SEVERE
Particles >4µm		ASTM D7647	>5000	▲ **126909**	▲ 99590	▲ 77466
Particles >6µm		ASTM D7647	>1300	▲ **47651**	▲ 33966	▲ 10859
Particles >14µm		ASTM D7647	>40	▲ **883**	▲ 911	▲ 512
Particles >21µm		ASTM D7647	>10	▲ **69**	▲ 147	▲ 186
Oil Cleanliness		ISO 4406 (c)	>19/17/12	▲ **24/23/17**	▲ 24/22/17	▲ 23/21/16
Visc @ 40°C	cSt	ASTM D7279(m)	118.2	▲ **89.3**	111	▲ 77
Visc @ 100°C	cSt	ASTM D7279(m)	15.6	▲ **12.4**	14.9	▲ 10.9

Customer Id: TERHAM
Sample No.: PC
Lab Number: 02636069
Test Package: MAR 2

To manage this report scan the QR code

To discuss the diagnosis or test data:
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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

ISO

27 Jan 2020 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.All component wear rates are normal. Particles >14µm are severely high. Particles >21µm are severely high. Particles >6µm are severely high. Particles >4µm are severely high. The system cleanliness code is much higher than the acceptable limit for the target ISO 4406 cleanliness code. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report

ISO

03 Jan 2020 Diag: Kevin Marson

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.All component wear rates are normal. Particles >14µm are severely high. Particles >21µm are severely high. Particles >6µm are severely high. Particles >4µm are severely high. Particles >38µm are abnormally high. The system cleanliness code is much higher than the acceptable limit for the target ISO 4406 cleanliness code. Viscosity of sample indicates oil is within SAE 10W30 range, advise investigate. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report

VISCOSITY

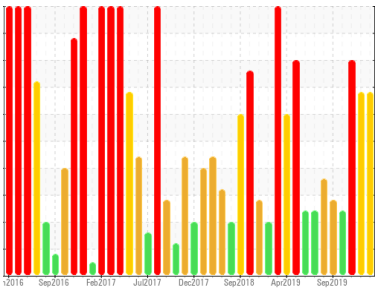
14 Oct 2019 Diag: Bill Quesnel

We recommend you service the filters on this component. We recommend an early resample to monitor this condition.All component wear rates are normal. Particles >4µm are abnormally high. Particles >6µm are abnormally high. Particles >14µm are notably high. Particles >21µm are notably high. The system cleanliness is above the acceptable limit for the target ISO 4406 cleanliness code. Viscosity of sample indicates oil is within SAE 10W30 range, advise investigate. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report

OIL ANALYSIS REPORT

Sample Rating Trend



ISO

Area
Water Injection [450328013]
Machine Id
Pump - Glycol Circulation (A) (S/N Sample Tag PA-38002A)
Component
Reciprocating Pump - Bearings/Crossheads
Fluid
PETRO CANADA DURON HP 15W40 (15 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

Viscosity of sample indicates oil is within SAE 10W30 range, advise investigate. 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**	PC0016566	PC
Sample Date		Client Info		**01 May 2024**	27 Jan 2020	03 Jan 2020
Machine Age		Client Info		**0**	0	0
Oil Age		Client Info		**0**	0	0
Oil Changed		Client Info		**N/A**	N/A	N/A
Sample Status				**SEVERE**	SEVERE	SEVERE

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

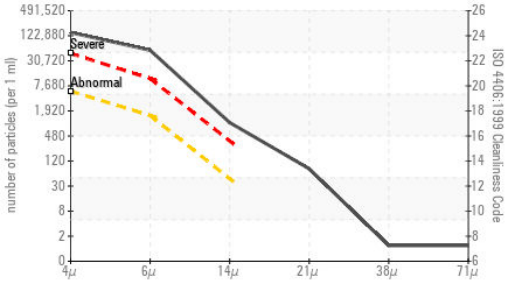
WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184*		**0**	8	6
Iron	ppm	ASTM D5185(m)	>75	**7**	<1	3
Chromium	ppm	ASTM D5185(m)	>5	**0**	<1	<1
Nickel	ppm	ASTM D5185(m)		**0**	0	<1
Titanium	ppm	ASTM D5185(m)		**0**	<1	<1
Silver	ppm	ASTM D5185(m)		**0**	0	0
Aluminum	ppm	ASTM D5185(m)	>5	**<1**	<1	1
Lead	ppm	ASTM D5185(m)	>10	**0**	0	<1
Copper	ppm	ASTM D5185(m)	>15	**12**	<1	2
Tin	ppm	ASTM D5185(m)		**0**	0	0
Antimony	ppm	ASTM D5185(m)		**0**	<1	<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)	0	**4**	<1	2
Barium	ppm	ASTM D5185(m)	0	**0**	0	0
Molybdenum	ppm	ASTM D5185(m)	60	**58**	61	64
Manganese	ppm	ASTM D5185(m)	0	**0**	<1	<1
Magnesium	ppm	ASTM D5185(m)	1010	**918**	988	1048
Calcium	ppm	ASTM D5185(m)	1070	**1160**	1031	1099
Phosphorus	ppm	ASTM D5185(m)	1150	**980**	1029	1130
Zinc	ppm	ASTM D5185(m)	1270	**1115**	1189	1267
Sulfur	ppm	ASTM D5185(m)	2060	**2555**	2738	3266
Lithium	ppm	ASTM D5185(m)		**<1**	<1	<1

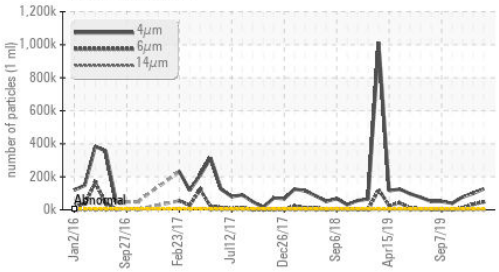
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>20	**4**	5	5
Sodium	ppm	ASTM D5185(m)		**4**	0	<1
Potassium	ppm	ASTM D5185(m)	>20	**4**	<1	<1

OIL ANALYSIS REPORT

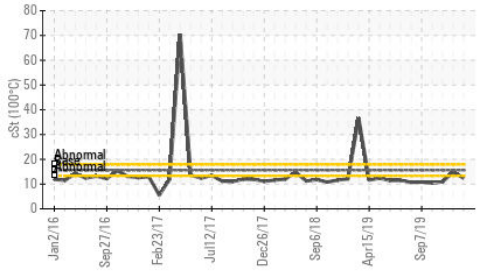
Particle Count



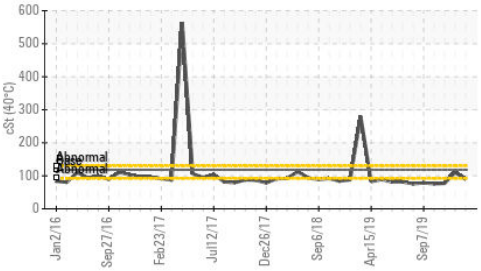
Particle Trend



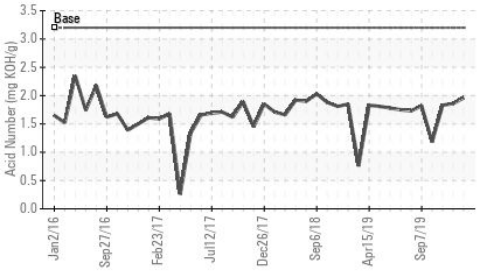
Viscosity @ 100°C



Viscosity @ 40°C



Acid Number



FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>5000	▲ **126909**	▲ 99590	▲ 77466
Particles >6µm		ASTM D7647	>1300	▲ **47651**	▲ 33966	▲ 10859
Particles >14µm		ASTM D7647	>40	▲ **883**	▲ 911	▲ 512
Particles >21µm		ASTM D7647	>10	▲ **69**	▲ 147	▲ 186
Particles >38µm		ASTM D7647	>3	**1**	5	▲ 9
Particles >71µm		ASTM D7647	>3	**1**	0	0
Oil Cleanliness		ISO 4406 (c)	>19/17/12	▲ **24/23/17**	▲ 24/22/17	▲ 23/21/16

FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	3.2	**1.96**	1.86	1.83

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**	VLITE	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)	118.2	▲ **89.3**	111	▲ 77
Visc @ 100°C	cSt	ASTM D7279(m)	15.6	▲ **12.4**	14.9	▲ 10.9
Viscosity Index (VI)	Scale	ASTM D2270*	139	**134**	139	129

SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					

ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PC
Lab Number : 02636069
Unique Number : 5785231
Test Package : MAR 2 (Additional Tests: KV100, PQ, PrtCount, TAN Man, VI)
Received : 16 May 2024
Tested : 21 May 2024
Diagnosed : 21 May 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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