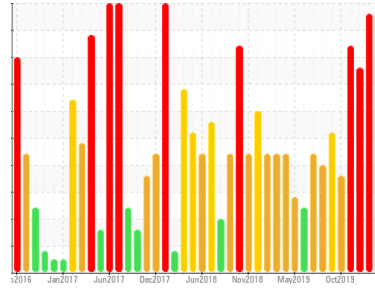
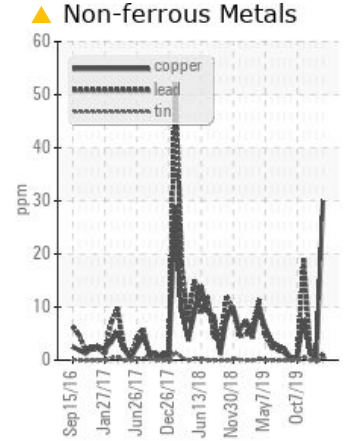
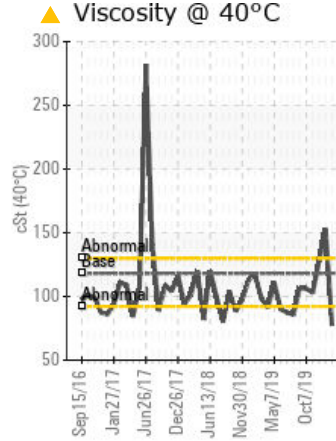
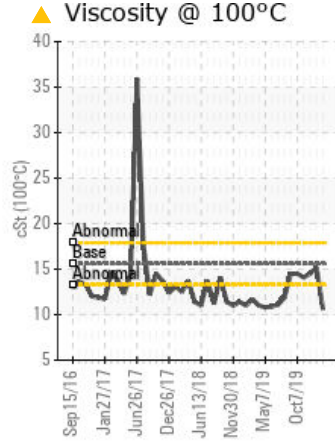
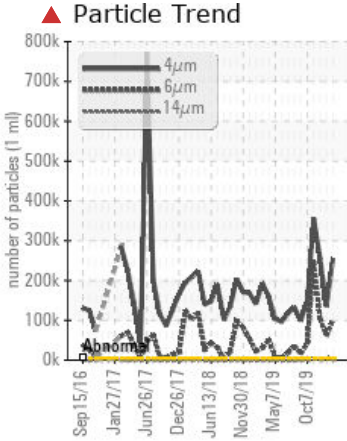




Area
Water Injection [450273721]
Machine Id
Pump - Glycol Circulation (B) (S/N Sample Tag PA-38002B)
Component
Pump
Fluid
PETRO CANADA DURON HP 15W40 (7 LTR)



COMPONENT CONDITION SUMMARY



RECOMMENDATION

We advise that you check all areas where contaminants can enter the system. We recommend that you drain the oil from the component if this has not already been done. We recommend you service the filters on this component. Resample in 30-45 days to monitor this situation.

PROBLEMATIC TEST RESULTS

Sample Status				SEVERE	SEVERE	SEVERE
Copper	ppm	ASTM D5185(m)	>15	▲ 30	<1	1
Particles >4µm		ASTM D7647	>5000	▲ 254999	▲ 135416	▲ 255539
Particles >6µm		ASTM D7647	>1300	▲ 101822	▲ 61155	▲ 103643
Particles >14µm		ASTM D7647	>40	▲ 1136	▲ 5063	▲ 1366
Particles >21µm		ASTM D7647	>10	▲ 229	▲ 1494	▲ 333
Particles >38µm		ASTM D7647	>3	▲ 12	▲ 70	▲ 12
Oil Cleanliness		ISO 4406 (c)	>19/17/12	▲ 25/24/17	▲ 24/23/20	▲ 25/24/18
Visc @ 40°C	cSt	ASTM D7279(m)	118.2	▲ 77.4	153	128
Visc @ 100°C	cSt	ASTM D7279(m)	15.6	▲ 10.6	15.2	14.5

Customer Id: TERHAM
Sample No.: PC
Lab Number: 02626226
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 Fluid	---	---	?	We recommend that you drain the oil from the component if this has not already been done.
Change Filter	---	---	?	We recommend you service the filters on this component.
Resample	---	---	?	Resample in 30-45 days to monitor this situation.
Check Dirt Access	---	---	?	We advise that you check all areas where contaminants can enter the system.


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 >38µm are severely high. Particles >6µm are severely high. Particles >4µm are severely high. Particles >71µm 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 40 range, advise investigate. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report




ISO




01 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. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report




ISO

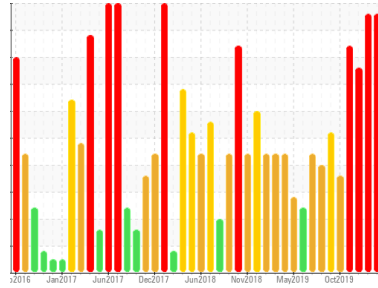


03 Dec 2019 Diag: Kevin Marson
 We advise that you check all areas where contaminants can enter the system. We recommend that you drain the oil from the component if this has not already been done. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. Resample in 30-45 days to monitor this situation. Iron and lead ppm levels are abnormal. A sharp increase in the iron level is noted. A sharp increase in the lead level is noted. 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 oil is no longer serviceable as a result of the abnormal and/or severe wear. NOTE: The color of the oil is darker than previous samples.

view report



Area
Water Injection [450273721]
Machine Id
Pump - Glycol Circulation (B) (S/N Sample Tag PA-38002B)
Component
Pump
Fluid
PETRO CANADA DURON HP 15W40 (7 LTR)



DIAGNOSIS

▲ Recommendation
We advise that you check all areas where contaminants can enter the system. We recommend that you drain the oil from the component if this has not already been done. We recommend you service the filters on this component. Resample in 30-45 days to monitor this situation.

▲ Wear
Copper ppm levels are abnormal.

▲ 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 no longer serviceable as a result of the abnormal and/or severe wear.

SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	PC	PC	PC
Sample Date	Client Info	13 Mar 2024	27 Jan 2020	01 Jan 2020
Machine Age	kms	0	0	0
Oil Age	kms	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
Iron	ppm ASTM D5185(m) >75	20	2	15
Chromium	ppm ASTM D5185(m) >5	0	<1	<1
Nickel	ppm ASTM D5185(m)	0	0	<1
Titanium	ppm ASTM D5185(m)	<1	<1	<1
Silver	ppm ASTM D5185(m)	0	0	0
Aluminum	ppm ASTM D5185(m) >5	2	<1	1
Lead	ppm ASTM D5185(m) >10	1	0	2
Copper	ppm ASTM D5185(m) >15	▲ 30	<1	1
Tin	ppm ASTM D5185(m)	<1	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	2	1	2
Barium	ppm ASTM D5185(m) 0	0	<1	<1
Molybdenum	ppm ASTM D5185(m) 60	65	60	59
Manganese	ppm ASTM D5185(m) 0	0	<1	<1
Magnesium	ppm ASTM D5185(m) 1010	1002	983	980
Calcium	ppm ASTM D5185(m) 1070	1184	991	926
Phosphorus	ppm ASTM D5185(m) 1150	1069	1012	946
Zinc	ppm ASTM D5185(m) 1270	1214	1177	1166
Sulfur	ppm ASTM D5185(m) 2060	2955	2704	2511
Lithium	ppm ASTM D5185(m)	<1	<1	<1

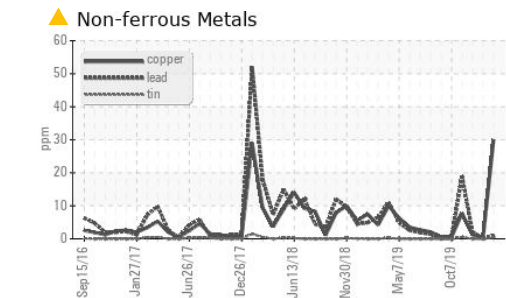
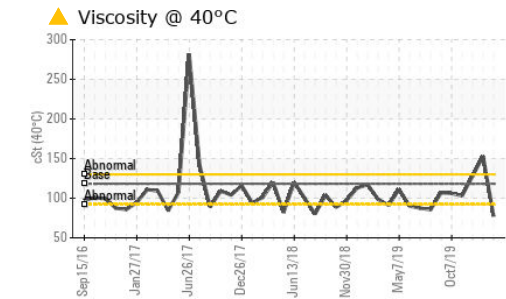
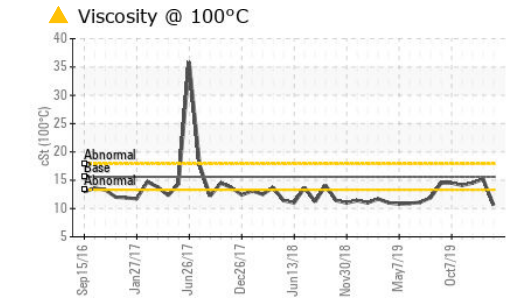
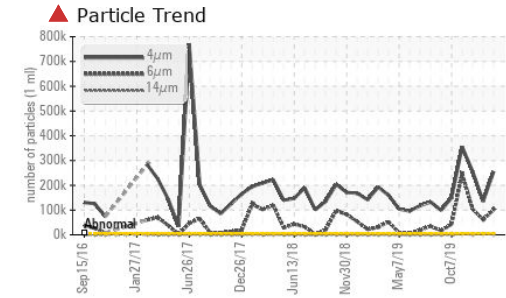
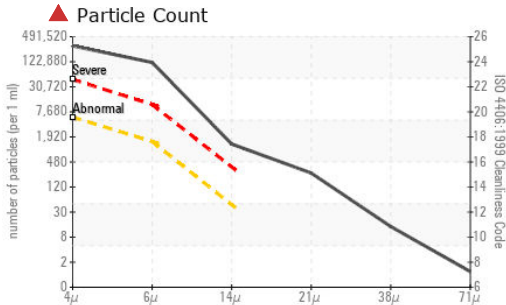
CONTAMINANTS

method	limit/base	current	history1	history2
Silicon	ppm ASTM D5185(m) >20	4	5	7
Sodium	ppm ASTM D5185(m)	6	<1	0
Potassium	ppm ASTM D5185(m) >20	1	<1	0

FLUID CLEANLINESS

method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647 >5000	▲ 254999	▲ 135416	▲ 255539
Particles >6µm	ASTM D7647 >1300	▲ 101822	▲ 61155	▲ 103643
Particles >14µm	ASTM D7647 >40	▲ 1136	▲ 5063	▲ 1366
Particles >21µm	ASTM D7647 >10	▲ 229	▲ 1494	▲ 333
Particles >38µm	ASTM D7647 >3	▲ 12	▲ 70	▲ 12
Particles >71µm	ASTM D7647 >3	1	▲ 12	2
Oil Cleanliness	ISO 4406 (c) >19/17/12	▲ 25/24/17	▲ 24/23/20	▲ 25/24/18

OIL ANALYSIS REPORT



ISO 17025:2017
Accredited
Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PC **Received** : 02 Apr 2024
Lab Number : 02626226 **Tested** : 03 Apr 2024
Unique Number : 5759358 **Diagnosed** : 03 Apr 2024 - Kevin Marson
Test Package : MAR 2 (Additional Tests: KV100, PrtCount, TAN Man, VI)

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.

FLUID DEGRADATION

	method	limit/base	current	history1	history2	
Acid Number (AN)	mg KOH/g	ASTM D974*	3.2	1.69	1.91	1.93

VISUAL

	method	limit/base	current	history1	history2	
White Metal	scalar	Visual*	NONE	NONE	NONE	VLITE
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	VLITE	NONE	NONE
Sand/Dirt	scalar	Visual*	NONE	VLITE	NONE	NONE
Appearance	scalar	Visual*	NORML	NORML	HAZY	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	▲ 77.4	153	128
Visc @ 100°C	cSt	ASTM D7279(m)	15.6	▲ 10.6	15.2	14.5
Viscosity Index (VI)	Scale	ASTM D2270*	139	122	▲ 99	▲ 113

SAMPLE IMAGES

