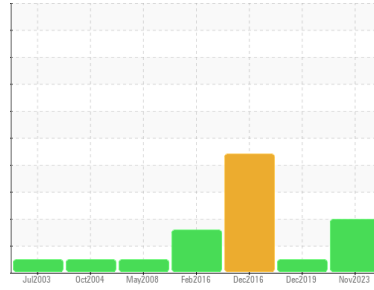
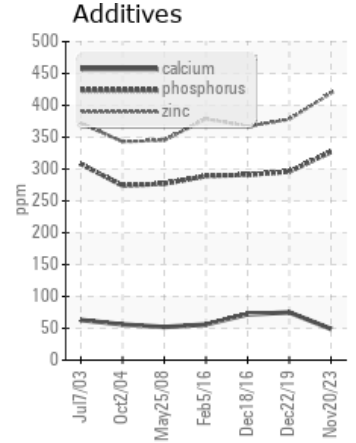
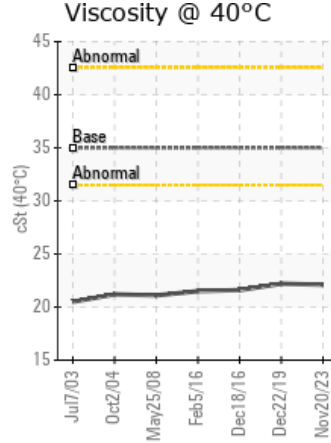
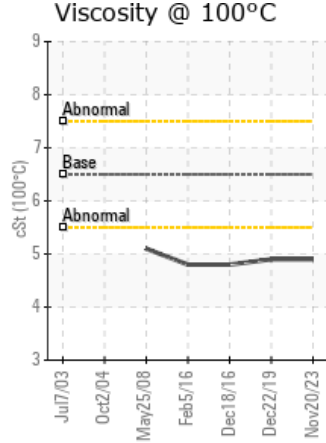
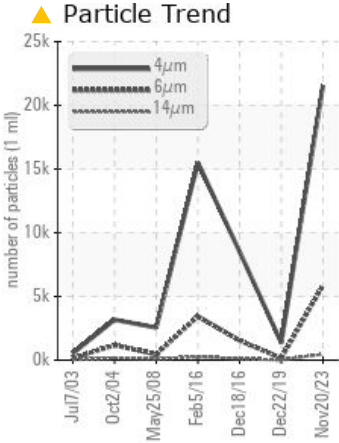


Area
[450228590]
 Machine Id
Hose Reel - Stbd Utilities Loading (Hyd Power Unit) (S/N Sample Tag XX-00002)
 Component
Hydraulic System
 Fluid
SAE 10W (--- LTR)



COMPONENT CONDITION SUMMARY



RECOMMENDATION

Little or no information is provided as to the component and lubricant being tested. Recommendations are therefore generic in nature and may not apply to the current application. Please forward information as to equipment type, reservoir capacity, lubricant type and any pertinent information to allow for a more accurate assessment. 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. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. Please specify the brand, type, and viscosity of the oil on your next sample.

PROBLEMATIC TEST RESULTS

Sample Status			ABNORMAL	NORMAL	ABNORMAL
Particles >6µm	ASTM D7647	>1300	▲ 5864	156	▲ 1543
Particles >14µm	ASTM D7647	>160	▲ 480	11	121
Particles >21µm	ASTM D7647	>40	▲ 136	4	36
Particles >38µm	ASTM D7647	>10	▲ 19	0	5
Oil Cleanliness	ISO 4406 (c)	>--/17/14	▲ 22/20/16	18/14/11	▲ 20/18/14

Customer Id: TERHAM
 Sample No.: PC
 Lab Number: 02601573
 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	---	---	?	We recommend an early resample to monitor this condition.
Alert	---	---	?	Little or no information is provided as to the component and lubricant being tested. Recommendations are therefore generic in nature and may not apply to the current application. Please forward information as to equipment type, reservoir capacity, lubricant type and any pertinent information to allow for a more accurate assessment.
Information Required	---	---	?	Please specify the brand, type, and viscosity of the oil on your next sample. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.
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

22 Dec 2019 Diag: Kevin Marson

NORMAL



Little or no information is provided as to the component and lubricant being tested. Recommendations are therefore generic in nature and may not apply to the current application. Please forward information as to equipment type, reservoir capacity, lubricant type and any pertinent information to allow for a more accurate assessment. Resample at the next service interval to monitor. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. Please specify the brand, type, and viscosity of the oil on your 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. Viscosity of sample indicates oil is within ISO 22 range, advise investigate. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report



18 Dec 2016 Diag: Kevin Marson

WATER



Little or no information is provided as to the component and lubricant being tested. Recommendations are therefore generic in nature and may not apply to the current application. Please forward information as to equipment type, reservoir capacity, lubricant type and any pertinent information to allow for a more accurate assessment. 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. Confirm the source of the lubricant being utilized for top-up/fill. We recommend an early resample to monitor this condition. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. Please specify the brand, type, and viscosity of the oil on your next sample. All component wear rates are normal. There is a light amount of silt (particulates < 14 microns in size) present in the oil. There is a moderate concentration of water present in the oil. The oil viscosity is lower than normal. This plus the additive levels indicates that this is not the same brand, or type of oil as reported. 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



05 Feb 2016 Diag: Kevin Marson

ISO



Little or no information is provided as to the component and lubricant being tested. Recommendations are therefore generic in nature and may not apply to the current application. Please forward information as to equipment type, reservoir capacity, lubricant type and any pertinent information to allow for a more accurate assessment. 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. Please specify the brand, type, and viscosity of the oil on your next sample. 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 water content is negligible. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

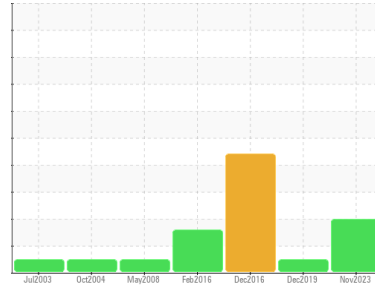
view report



Area
[450228590]

Machine Id
Hose Reel - Stbd Utilities Loading (Hyd Power Unit) (S/N Sample Tag XX-00002)

Component
Hydraulic System
Fluid
SAE 10W (--- LTR)



DIAGNOSIS

Recommendation

Little or no information is provided as to the component and lubricant being tested. Recommendations are therefore generic in nature and may not apply to the current application. Please forward information as to equipment type, reservoir capacity, lubricant type and any pertinent information to allow for a more accurate assessment. 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. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. Please specify the brand, type, and viscosity of the oil on your next sample.

Wear

All component wear rates are normal.

Contamination

There is a moderate amount of particulates (2 to 100 microns in size) present in the oil. The system cleanliness is above the acceptable limit for the target ISO 4406 cleanliness code.

Fluid Condition

The oil viscosity is lower than typical, possibly indicating the addition of lighter grade oil. The AN level is acceptable for this fluid.

SAMPLE INFORMATION	method	limit/base	current	history1	history2
Sample Number	Client Info		PC	PC	PC
Sample Date	Client Info		20 Nov 2023	22 Dec 2019	18 Dec 2016
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			ABNORMAL	NORMAL	ABNORMAL

CONTAMINATION	method	limit/base	current	history1	history2
Water	WC Method	>0.05	NEG	NEG	NEG

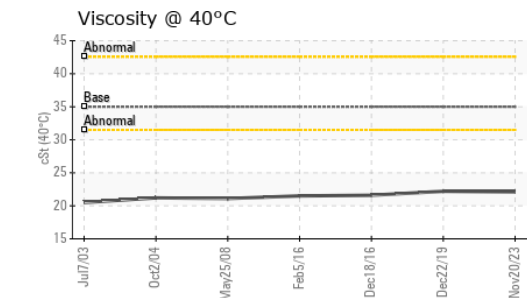
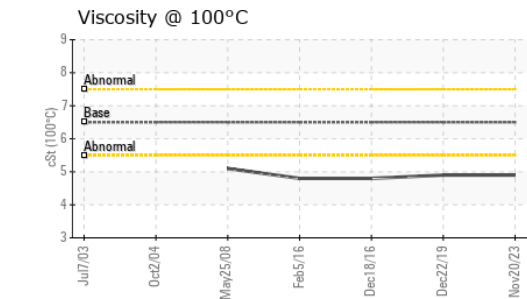
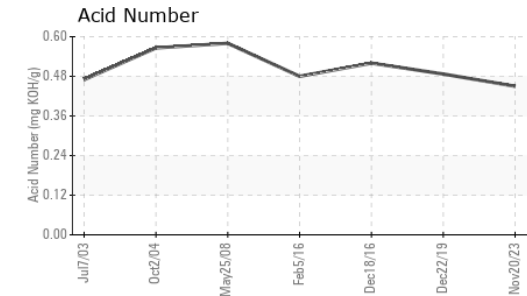
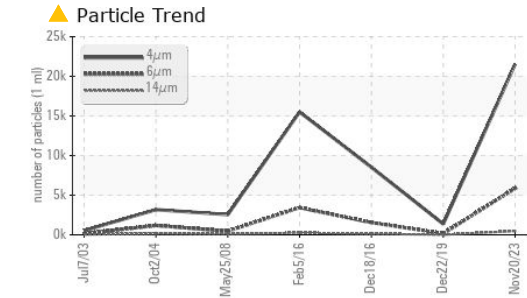
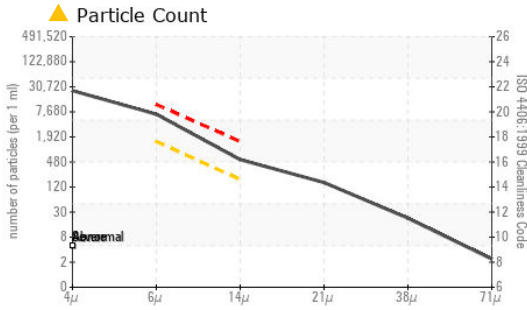
WEAR METALS	method	limit/base	current	history1	history2	
Iron	ppm	ASTM D5185(m)	>20	<1	0	<1
Chromium	ppm	ASTM D5185(m)	>10	0	0	0
Nickel	ppm	ASTM D5185(m)	>10	<1	0	<1
Titanium	ppm	ASTM D5185(m)		0	0	0
Silver	ppm	ASTM D5185(m)		<1	0	0
Aluminum	ppm	ASTM D5185(m)	>10	0	0	<1
Lead	ppm	ASTM D5185(m)	>20	<1	0	<1
Copper	ppm	ASTM D5185(m)	>20	<1	<1	<1
Tin	ppm	ASTM D5185(m)	>10	0	0	0
Antimony	ppm	ASTM D5185(m)		0	<1	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)		<1	<1	<1
Barium	ppm	ASTM D5185(m)		<1	0	<1
Molybdenum	ppm	ASTM D5185(m)		0	0	0
Manganese	ppm	ASTM D5185(m)		0	0	<1
Magnesium	ppm	ASTM D5185(m)		0	5	56
Calcium	ppm	ASTM D5185(m)		49	75	72
Phosphorus	ppm	ASTM D5185(m)		327	296	▲ 291
Zinc	ppm	ASTM D5185(m)		419	378	▲ 367
Sulfur	ppm	ASTM D5185(m)		754	727	▲ 713
Lithium	ppm	ASTM D5185(m)		<1	<1	<1

CONTAMINANTS	method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185(m)	>15	0	0	<1
Sodium	ppm	ASTM D5185(m)		<1	0	2
Potassium	ppm	ASTM D5185(m)	>20	0	<1	0

FLUID CLEANLINESS	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647		21538	1370	▲ 8518
Particles >6µm	ASTM D7647	>1300	▲ 5864	156	▲ 1543
Particles >14µm	ASTM D7647	>160	▲ 480	11	121
Particles >21µm	ASTM D7647	>40	▲ 136	4	36
Particles >38µm	ASTM D7647	>10	▲ 19	0	5
Particles >71µm	ASTM D7647	>3	2	0	0
Oil Cleanliness	ISO 4406 (c)	>--/17/14	▲ 22/20/16	18/14/11	▲ 20/18/14

OIL ANALYSIS REPORT

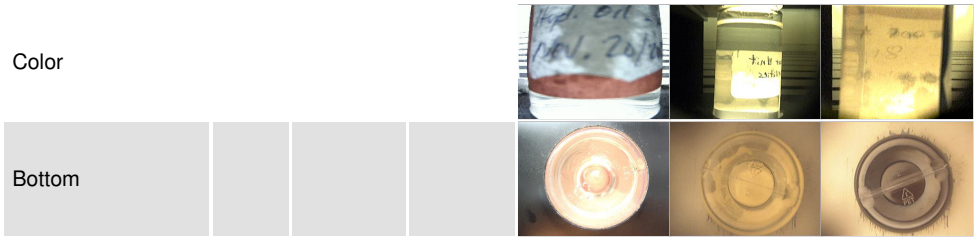


FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*		0.45	0.487	0.52

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*	>0.05	NEG	NEG	.2%
Free Water	scalar	Visual*		NEG	NEG	NEG

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	35.0	22.1	22.2	▲ 21.6
Visc @ 100°C	cSt	ASTM D7279(m)	6.5	4.9	4.9	4.8
Viscosity Index (VI)	Scale	ASTM D2270*	141	152	151	149

SAMPLE IMAGES



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PC
Lab Number : 02601573
Unique Number : 5694658
Test Package : MAR 2 (Additional Tests: KV100, VI)
Received : 07 Dec 2023
Diagnosed : 08 Dec 2023
Diagnostician : Kevin Marson

Suncor - Terra Nova Projects
 Scotia Centre, 235 Water Street
 St. John's, NL
 CA A1C 1B6
 Contact: Josh Hynes
 joshhynes@suncor.com
 T: (709)778-3575
 F: (709)724-2835

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.