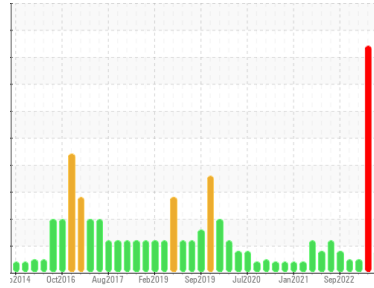


PROBLEM SUMMARY

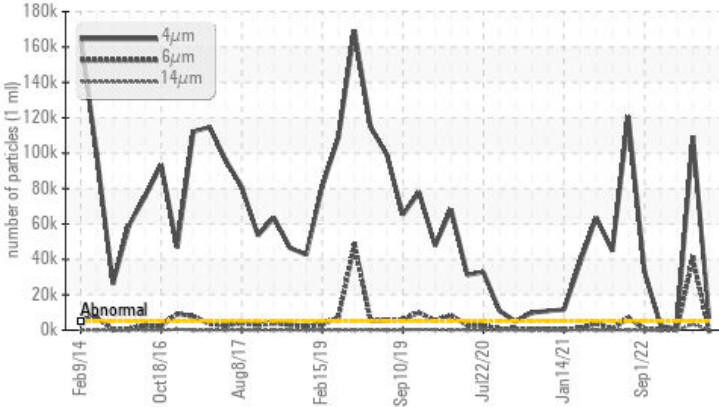
Area
1420
Machine Id
1420-5671-4001 - SAG MILL TRUNNION/PINION LUBE
Component
Bulk Fluid Tank
Fluid
PETRO CANADA ENDURATEX EP 320 (1000 LTR)

Sample Rating Trend



COMPONENT CONDITION SUMMARY

▲ Particle Trend



RECOMMENDATION

We recommend you service the filters on this component. Resample at the next service interval to monitor.

PROBLEMATIC TEST RESULTS

Sample Status		ATTENTION	SEVERE	NORMAL
Particles >4µm	ASTM D7647 >5000	▲ 7036	● 109505	641
Oil Cleanliness	ISO 4406 (c) >19/17/14	▲ 20/15/11	● 24/23/19	17/13/9

Customer Id: INCVOS
Sample No.: PC0070132
Lab Number: 02582968
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.

HISTORICAL DIAGNOSIS

27 Apr 2023 Diag: Kevin Marson

ISO



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. Copper ppm levels are abnormal. There is a high amount of particulates (2 to 100 microns in size) present in the oil. 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



19 Mar 2023 Diag: Wes Davis

NORMAL



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



21 Nov 2022 Diag: Wes Davis

NORMAL

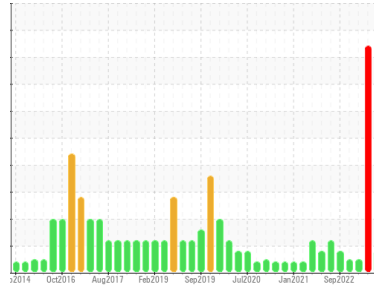


Resample at the next service interval to monitor. All component wear rates are normal. The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report



Area
1420
Machine Id
1420-5671-4001 - SAG MILL TRUNNION/PINION LUBE
Component
Bulk Fluid Tank
Fluid
PETRO CANADA ENDURATEX EP 320 (1000 LTR)



DIAGNOSIS

Recommendation
We recommend you service the filters on this component. Resample at the next service interval to monitor.

Wear
All component wear rates are normal.

Contamination
There is a light amount of silt (particulates < 14 microns in size) present in the oil.

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

SAMPLE INFORMATION	method	limit/base	current	history1	history2
Sample Number	Client Info		PC0070132	PC0040301	PC0040298
Sample Date	Client Info		14 Aug 2023	27 Apr 2023	19 Mar 2023
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			ATTENTION	SEVERE	NORMAL

WEAR METALS	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	5	6	5
Chromium	ppm	ASTM D5185(m)	0	0	0
Nickel	ppm	ASTM D5185(m)	<1	<1	<1
Titanium	ppm	ASTM D5185(m)	0	0	0
Silver	ppm	ASTM D5185(m)	0	0	0
Aluminum	ppm	ASTM D5185(m)	0	<1	0
Lead	ppm	ASTM D5185(m)	<1	<1	0
Copper	ppm	ASTM D5185(m)	1	▲ 17	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

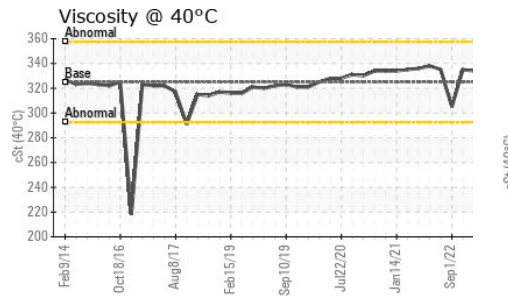
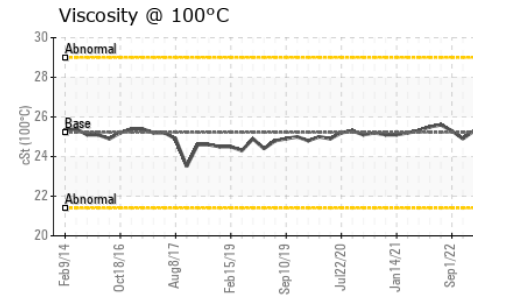
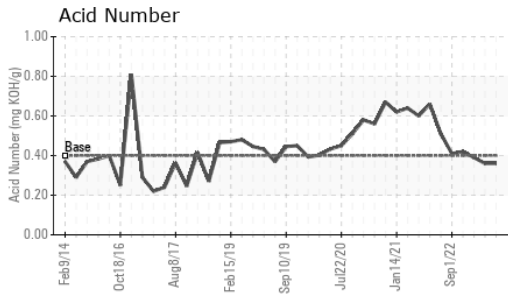
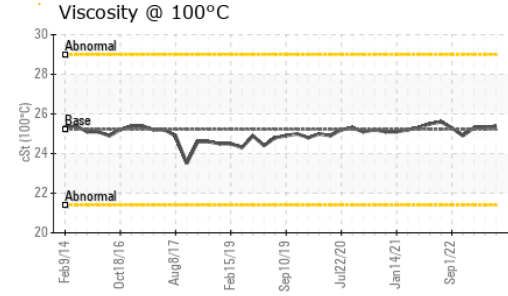
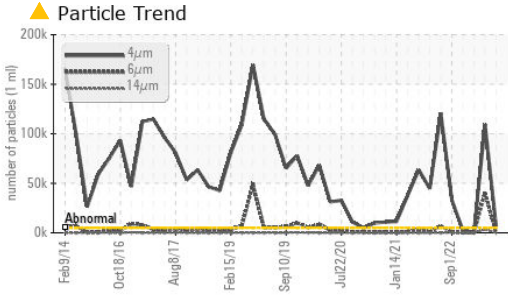
ADDITIVES	method	limit/base	current	history1	history2	
Boron	ppm	ASTM D5185(m)	55	19	23	26
Barium	ppm	ASTM D5185(m)	0	0	0	0
Molybdenum	ppm	ASTM D5185(m)	0	<1	0	0
Manganese	ppm	ASTM D5185(m)	0	0	<1	<1
Magnesium	ppm	ASTM D5185(m)	0	1	<1	1
Calcium	ppm	ASTM D5185(m)	0	2	0	<1
Phosphorus	ppm	ASTM D5185(m)	240	248	266	264
Zinc	ppm	ASTM D5185(m)	1	6	6	5
Sulfur	ppm	ASTM D5185(m)	13700	5278	5633	5890
Lithium	ppm	ASTM D5185(m)		5	5	5

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

FLUID CLEANLINESS	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>5000	▲ 7036	109505	641
Particles >6µm	ASTM D7647	>1300	215	40491	55
Particles >14µm	ASTM D7647	>160	19	3364	3
Particles >21µm	ASTM D7647	>40	5	709	2
Particles >38µm	ASTM D7647	>10	2	4	1
Particles >71µm	ASTM D7647	>3	2	0	0
Oil Cleanliness	ISO 4406 (c)	>19/17/14	▲ 20/15/11	24/23/19	17/13/9

FLUID DEGRADATION	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974* 0.4	0.36	0.36	0.39

OIL ANALYSIS REPORT

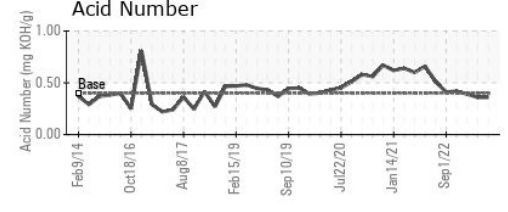
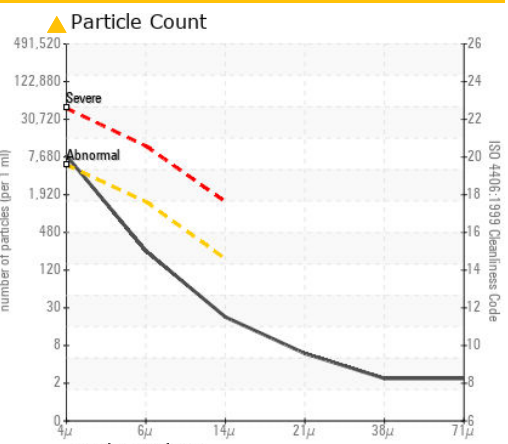
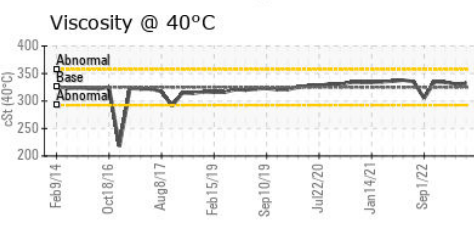
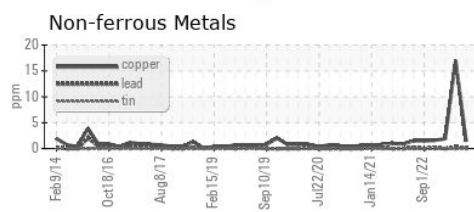
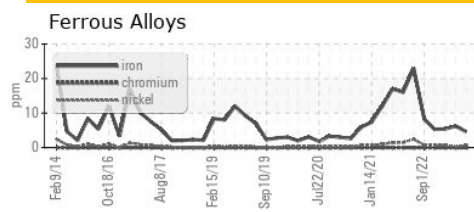


VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	NONE	NONE
Yellow Metal	scalar	Visual*	NONE	NONE	NONE
Precipitate	scalar	Visual*	NONE	NONE	NONE
Silt	scalar	Visual*	NONE	NONE	NONE
Debris	scalar	Visual*	NONE	NONE	NONE
Sand/Dirt	scalar	Visual*	NONE	NONE	NONE
Appearance	scalar	Visual*	NORML	NORML	NORML
Odor	scalar	Visual*	NORML	NORML	NORML
Emulsified Water	scalar	Visual*	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)	325	331	334
Visc @ 100°C	cSt	ASTM D7279(m)	25.4	25.3	25.3
Viscosity Index (VI)	Scale	ASTM D2270*	100	99	98

SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					

GRAPHS



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PC0070132 **Received** : 15 Sep 2023
Lab Number : 02582968 **Diagnosed** : 18 Sep 2023
Unique Number : 5644033 **Diagnostician** : Wes Davis
Test Package : IND 2 (Additional Tests: KV100, VI)

Vale - Voisey's Bay
 Voisey's Bay Mine Site, P.O. Box 7001, Stn. 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