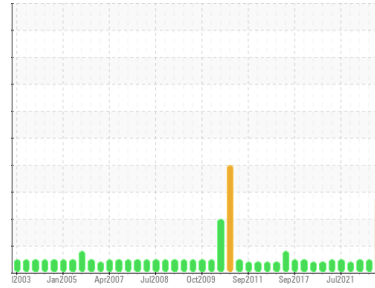




OIL ANALYSIS REPORT

Sample Rating Trend



VISCOSITY



Machine Id #1 Cond.Extraction Pump Lube Oil (S/N 44200-VSD-1)

Component
Speed Reducer
Fluid
ESSO HYDRAUL 56 (254 LTR)

DIAGNOSIS

Recommendation

Due to this condition we recommend the following action... We advise an early resample to confirm this situation. NOTE: The current sample results do not match this units historical trend, indicating the sample may not be from this component/unit.

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

Viscosity of sample indicates oil is within ATF range, advise investigate. 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 condition of the oil is suitable for further service.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		WC0831831	WC0774121	WC0714810
Sample Date	Client Info		10 Jul 2023	21 Jan 2023	06 Sep 2022
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			ABNORMAL	NORMAL	NORMAL

CONTAMINATION

	method	limit/base	current	history1	history2
Water	WC Method	>0.1	NEG	NEG	NEG

WEAR METALS

	method	limit/base	current	history1	history2	
Iron	ppm	ASTM D5185(m)	>150	13	4	11
Chromium	ppm	ASTM D5185(m)	>10	0	0	0
Nickel	ppm	ASTM D5185(m)	>10	<1	0	0
Titanium	ppm	ASTM D5185(m)		0	<1	<1
Silver	ppm	ASTM D5185(m)		<1	0	0
Aluminum	ppm	ASTM D5185(m)	>25	<1	<1	<1
Lead	ppm	ASTM D5185(m)	>100	<1	3	<1
Copper	ppm	ASTM D5185(m)	>50	1	6	6
Tin	ppm	ASTM D5185(m)	>10	0	0	0
Antimony	ppm	ASTM D5185(m)	>5	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	2	<1

ADDITIVES

	method	limit/base	current	history1	history2	
Boron	ppm	ASTM D5185(m)		83	85	88
Barium	ppm	ASTM D5185(m)		<1	0	0
Molybdenum	ppm	ASTM D5185(m)		0	<1	<1
Manganese	ppm	ASTM D5185(m)		0	<1	<1
Magnesium	ppm	ASTM D5185(m)		5	8	10
Calcium	ppm	ASTM D5185(m)		▲ 383	3639	3747
Phosphorus	ppm	ASTM D5185(m)		▲ 308	1229	1247
Zinc	ppm	ASTM D5185(m)		▲ 157	1384	1386
Sulfur	ppm	ASTM D5185(m)		▲ 2353	6109	6168
Lithium	ppm	ASTM D5185(m)		<1	<1	<1

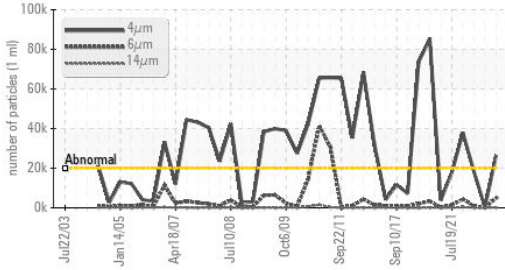
CONTAMINANTS

	method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185(m)	>50	2	6	7
Sodium	ppm	ASTM D5185(m)		1	4	5
Potassium	ppm	ASTM D5185(m)	>20	<1	0	<1

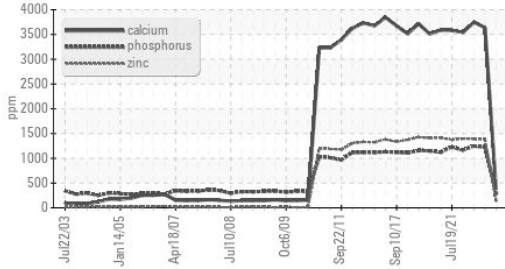
FLUID CLEANLINESS

	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>20000	▲ 26357	381	18325
Particles >6µm	ASTM D7647	>5000	4812	110	741
Particles >14µm	ASTM D7647	>640	144	9	63
Particles >21µm	ASTM D7647	>160	25	3	18
Particles >38µm	ASTM D7647	>40	1	0	1
Particles >71µm	ASTM D7647	>10	0	0	1
Oil Cleanliness	ISO 4406 (c)	>21/19/16	▲ 22/19/14	16/14/10	21/17/13

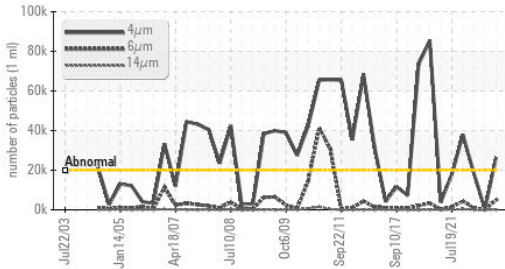
Particle Trend



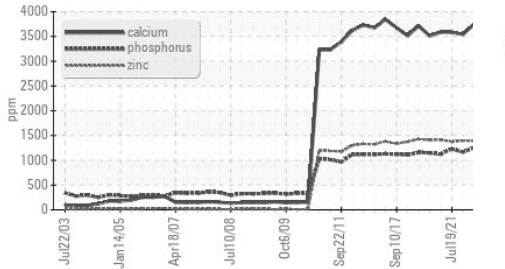
Additives



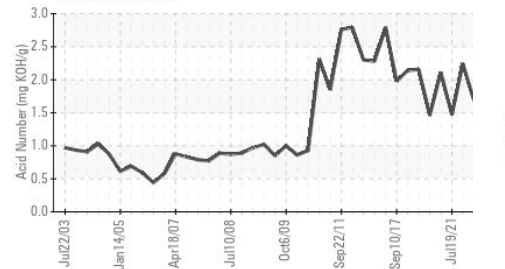
Particle Trend



Additives



Acid Number

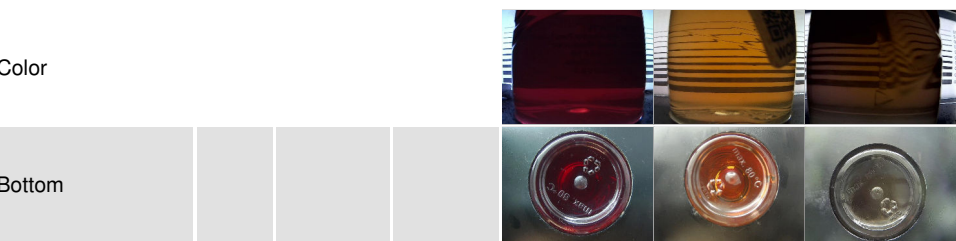


FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*		0.71	1.70	1.69

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*	>0.1	NEG	NEG	NEG
Free Water	scalar	Visual*		NEG	NEG	NEG

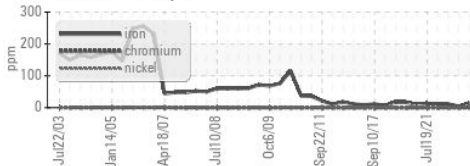
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	53	▲ 37.7	50.4	52.0

SAMPLE IMAGES

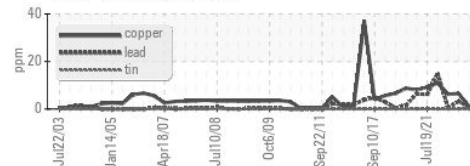


GRAPHS

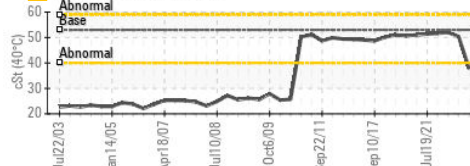
Ferrous Alloys



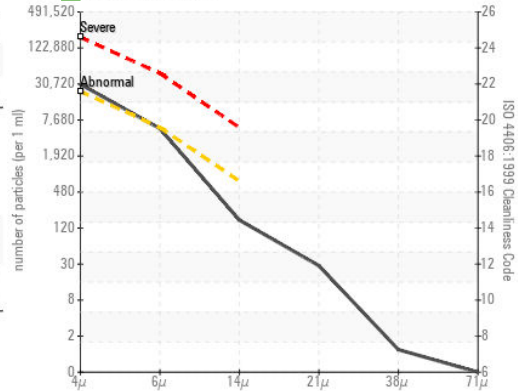
Non-ferrous Metals



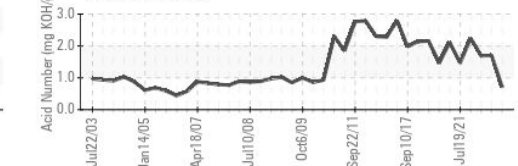
Viscosity @ 40°C



Particle Count



Acid Number



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0831831 **Received** : 19 Dec 2023
Lab Number : **02604142** **Diagnosed** : 20 Dec 2023
Unique Number : 5697227 **Diagnostician** : Kevin Marson
Test Package : IND 2 (Additional Tests: TAN Man)

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.

Ontario Power Generation
 ATIKOKAN T.G.S., BOX 1900
 ATIKOKAN, ON
 CA P0T 1C0
 Contact: Chris Perrier
 christopher.perrier@opg.com
 T: (807)597-3545
 F: (807)597-1198