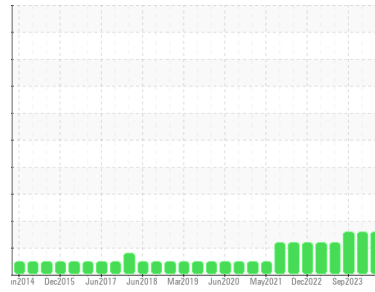




OIL ANALYSIS REPORT

Sample Rating Trend



DIRT



Machine Id

LLIHPU

Component

Hydraulic System

Fluid

GREENLAND HYDRAULIC FLUID ES 46 (450 LTR)

DIAGNOSIS

Recommendation

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 recommend an early resample to monitor this condition.

Wear

All component wear rates are normal.

Contamination

Elemental level of silicon (Si) above normal indicating ingress of seal material and/or dirt.

Fluid Condition

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		WC0843682	WC0843683	WC0843695
Sample Date	Client Info		25 Mar 2024	20 Dec 2023	26 Sep 2023
Machine Age	hrs	Client Info	30	30	30
Oil Age	hrs	Client Info	30	0	30
Oil Changed	Client Info		N/A	N/A	N/A
Sample Status			ABNORMAL	ABNORMAL	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	5	5	3
Chromium	ppm	ASTM D5185(m) >20	0	0	0
Nickel	ppm	ASTM D5185(m) >20	0	<1	0
Titanium	ppm	ASTM D5185(m)	0	0	0
Silver	ppm	ASTM D5185(m)	0	0	<1
Aluminum	ppm	ASTM D5185(m) >20	0	<1	0
Lead	ppm	ASTM D5185(m) >20	0	0	<1
Copper	ppm	ASTM D5185(m) >20	<1	<1	<1
Tin	ppm	ASTM D5185(m) >20	0	0	0
Antimony	ppm	ASTM D5185(m)	0	0	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	<1	<1
Molybdenum	ppm	ASTM D5185(m)	0	0	0
Manganese	ppm	ASTM D5185(m)	0	0	<1
Magnesium	ppm	ASTM D5185(m) 90	53	52	56
Calcium	ppm	ASTM D5185(m) 200	167	173	182
Phosphorus	ppm	ASTM D5185(m) 400	271	280	294
Zinc	ppm	ASTM D5185(m) 50	10	7	9
Sulfur	ppm	ASTM D5185(m) 4900	5657	6153	6009
Lithium	ppm	ASTM D5185(m)	<1	<1	<1

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m) >15	▲ 20	▲ 21	▲ 25
Sodium	ppm	ASTM D5185(m)	5	4	5
Potassium	ppm	ASTM D5185(m) >20	34	43	38

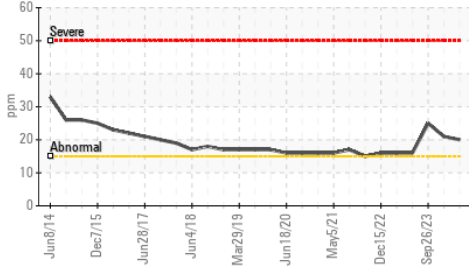
FLUID CLEANLINESS

	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>5000	2161	1875	1169
Particles >6µm	ASTM D7647	>1300	579	529	258
Particles >14µm	ASTM D7647	>160	60	49	28
Particles >21µm	ASTM D7647	>40	24	13	12
Particles >38µm	ASTM D7647	>10	9	2	5
Particles >71µm	ASTM D7647	>3	6	1	4
Oil Cleanliness	ISO 4406 (c)	>19/17/14	18/16/13	18/16/13	17/15/12

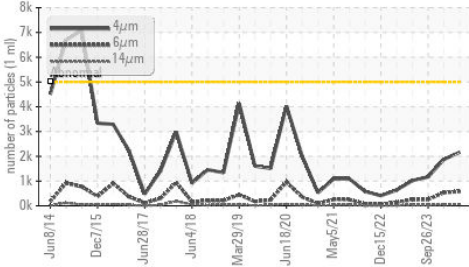


OIL ANALYSIS REPORT

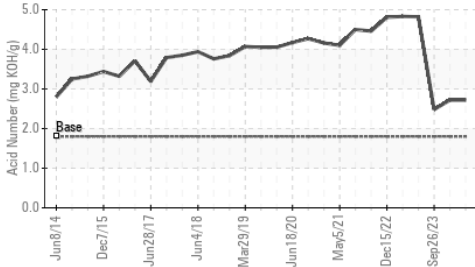
▲ Silicon (ppm)



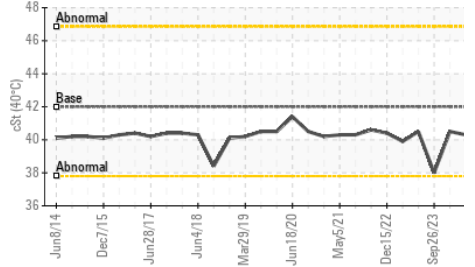
Particle Trend



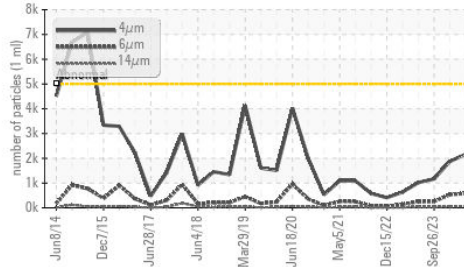
Acid Number



Viscosity @ 40°C



Particle Trend



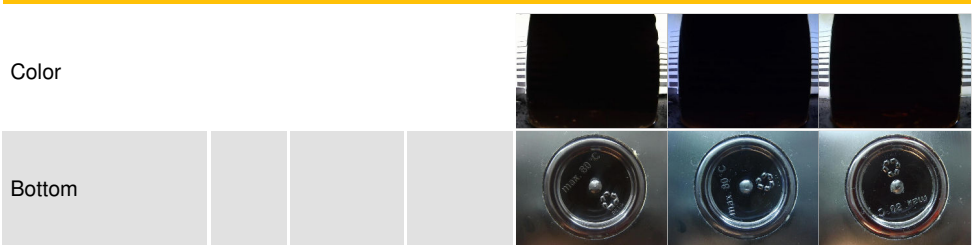
FLUID DEGRADATION

method	limit/base	current	history1	history2		
Acid Number (AN) mg KOH/g	ASTM D974*	1.8	2.72	2.72	2.48	
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	VLITE	NONE	NONE
Appearance	scalar	Visual*	NORML	NORML	NORML	NORML
Odor	scalar	Visual*	NORML	NORML	NORML	NORML
Emulsified Water	scalar	Visual*	>0.05	NEG	NEG	NEG
Free Water	scalar	Visual*		NEG	NEG	NEG

FLUID PROPERTIES

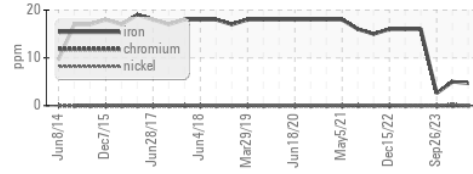
method	limit/base	current	history1	history2		
Visc @ 40°C	cSt	ASTM D7279(m)	42	40.3	40.5	38.0

SAMPLE IMAGES

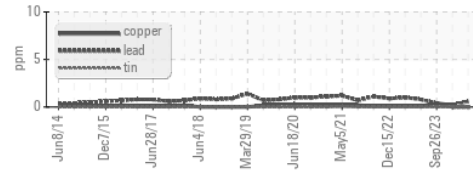


GRAPHS

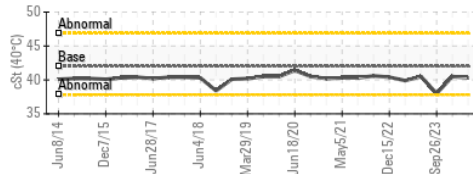
Ferrous Alloys



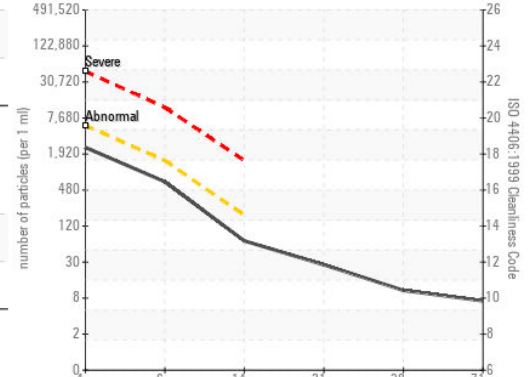
Non-ferrous Metals



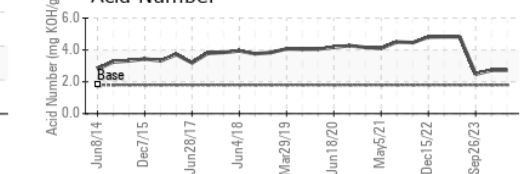
Viscosity @ 40°C



Particle Count



Acid Number



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
 Sample No. : WC0843682
 Lab Number : 02626427
 Unique Number : 5759559
 Test Package : IND 2

Long Lake Hydro Inc. (Regional Power)
 1104 Railway St.
 Stewart, BC
 CA V0T 1W0
 Contact: Jonathan Zappitelli
 jzappitelli@cclinfrastucture.com
 T: (778)794-0385
 F:

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.