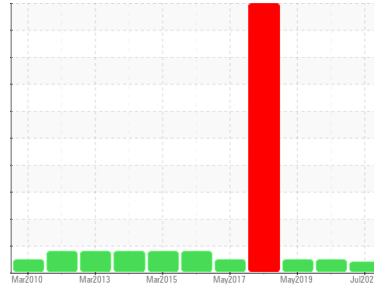




# PROBLEM SUMMARY

Area  
**Lac Seul GS**  
 Machine Id  
**FP5-G1 HP Bearing Lube System**  
 Component  
**Bearing Lube**  
 Fluid  
**ESSO NUTO H ISO 68 (--- GAL)**

Sample Rating Trend

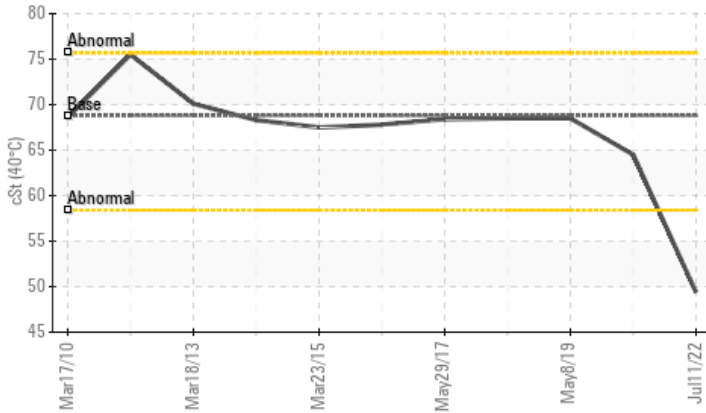


## VISCOSITY

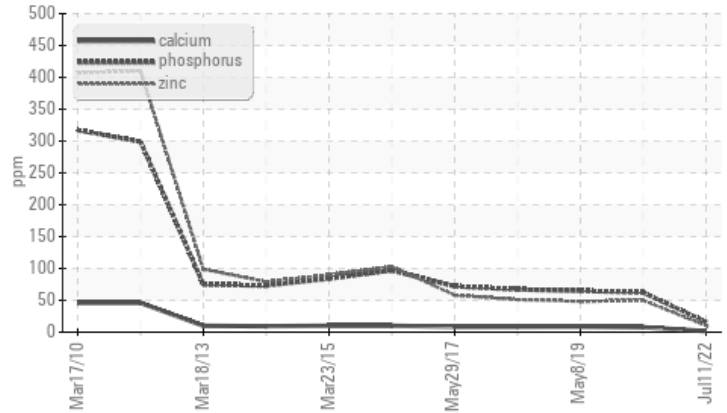


### COMPONENT CONDITION SUMMARY

▲ Viscosity @ 40°C



Additives



### RECOMMENDATION

Confirm the source of the lubricant being utilized for top-up/fill. Resample at the next service interval to monitor. The fluid was specified as ESSO NUTO H ISO 68, however, a fluid match indicates that this fluid is ISO 46 R&O Hydraulic Oil. Please confirm the oil type and grade on your next sample. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.

### PROBLEMATIC TEST RESULTS

Sample Status		ABNORMAL	NORMAL	NORMAL	
Visc @ 40°C	cSt	ASTM D7279(m) 68.8	▲ 49.4	64.5	68.5

Customer Id: ONTKEE  
 Sample No.: WC0686272  
 Lab Number: 02499232  
 Test Package: IND 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](mailto:Kevin.Marson@wearcheck.com)

To change component or sample information:  
 Gloria Gonzalez +1 (289)291-4643 x4643  
[gloria.gonzalez@wearcheck.com](mailto:gloria.gonzalez@wearcheck.com)

## RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Alert	MISSED	May 25 2023	?	The fluid was specified as ESSO NUTO H ISO 68, however, a fluid match indicates that this fluid is ISO 46 R&O Hydraulic Oil. Please confirm the oil type and grade on your next sample.
Information Required	MISSED	May 25 2023	?	NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.
Check Fluid Source	MISSED	May 25 2023	?	Confirm the source of the lubricant being utilized for top-up/fill.

## HISTORICAL DIAGNOSIS

### 13 Jul 2020 Diag: Kevin Marson

NORMAL



Confirm the source of the lubricant being utilized for top-up/fill. Resample at the next service interval to monitor. The fluid was specified as ESSO NUTO H ISO 68, however, a fluid match indicates that this fluid is ISO 68 R&O Hydraulic Oil. Please confirm the oil type and grade on your next sample. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with 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. Additive levels indicate the addition of a different brand, or type of oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report



### 08 May 2019 Diag: Kevin Marson

NORMAL



Confirm the source of the lubricant being utilized for top-up/fill. Resample at the next service interval to monitor. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with 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. Additive levels indicate the addition of a different brand, or type of oil. The condition of the oil is acceptable for the time in service.

view report



### 12 Feb 2018 Diag: Kevin Marson

CONTAMINANT



We recommend that you perform vacuum distillation and/or air drying to attempt to remove any residual water and/or entrained gases from this oil that may be contributing to abnormal foaming and/or poor water separability. 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. All component wear rates are normal. MPC (Membrane Patch Calorimetry) test indicates acceptable levels of varnish present. Water Separability results (ASTM D1401) are poor and indicate that the oil will form emulsions with water. The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The water content is negligible. Additive levels indicate the addition of a different brand, or type of oil. Linear Sweep Voltammetry (RULER – ASTM D6971) testing indicates normal levels of anti-oxidants present in the oil. The AN level is acceptable for this fluid.

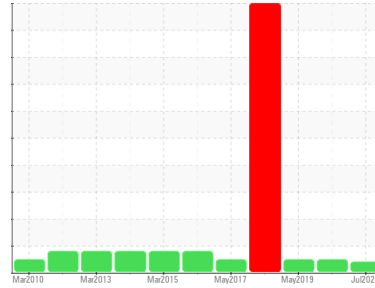
view report





# OIL ANALYSIS REPORT

Sample Rating Trend



## VISCOSITY



Area  
**Lac Seul GS**  
 Machine Id  
**FP5-G1 HP Bearing Lube System**  
 Component  
**Bearing Lube**  
 Fluid  
**ESSO NUTO H ISO 68 (--- GAL)**

### DIAGNOSIS

#### Recommendation

Confirm the source of the lubricant being utilized for top-up/fill. Resample at the next service interval to monitor. The fluid was specified as ESSO NUTO H ISO 68, however, a fluid match indicates that this fluid is ISO 46 R&O Hydraulic Oil. Please confirm the oil type and grade on your next sample. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.

#### Wear

All component wear rates are normal.

#### Contamination

The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable.

#### Fluid Condition

Viscosity of sample indicates oil is within ISO 46 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	<b>WC0686272</b>	WC0481703	WC0335057
Sample Date	Client Info	<b>11 Jul 2022</b>	13 Jul 2020	08 May 2019
Machine Age	hrs	Client Info	0	0
Oil Age	hrs	Client Info	0	0
Oil Changed	Client Info	<b>N/A</b>	N/A	N/A
Sample Status		<b>ABNORMAL</b>	NORMAL	NORMAL

### CONTAMINATION

method	limit/base	current	history1	history2
Water	WC Method >2	<b>NEG</b>	NEG	NEG

### WEAR METALS

method	limit/base	current	history1	history2
PQ	ASTM D8184*	<b>0</b>	0	7
Iron	ppm ASTM D5185(m) >120	<b>&lt;1</b>	<1	0
Chromium	ppm ASTM D5185(m) >5	<b>0</b>	0	0
Nickel	ppm ASTM D5185(m)	<b>0</b>	<1	0
Titanium	ppm ASTM D5185(m)	<b>0</b>	0	0
Silver	ppm ASTM D5185(m)	<b>0</b>	0	0
Aluminum	ppm ASTM D5185(m) >4	<b>&lt;1</b>	<1	<1
Lead	ppm ASTM D5185(m) >30	<b>&lt;1</b>	<1	<1
Copper	ppm ASTM D5185(m) >17	<b>1</b>	8	15
Tin	ppm ASTM D5185(m) >10	<b>0</b>	0	0
Antimony	ppm ASTM D5185(m)	<b>0</b>	0	<1
Vanadium	ppm ASTM D5185(m)	<b>0</b>	0	0
Beryllium	ppm ASTM D5185(m)	<b>0</b>	0	0
Cadmium	ppm ASTM D5185(m)	<b>0</b>	0	<1

### ADDITIVES

method	limit/base	current	history1	history2
Boron	ppm ASTM D5185(m) 0	<b>0</b>	<1	<1
Barium	ppm ASTM D5185(m) 0	<b>0</b>	0	0
Molybdenum	ppm ASTM D5185(m) 0	<b>0</b>	0	<1
Manganese	ppm ASTM D5185(m)	<b>0</b>	0	<1
Magnesium	ppm ASTM D5185(m) 5	<b>0</b>	<1	<1
Calcium	ppm ASTM D5185(m) 50	<b>2</b>	8	9
Phosphorus	ppm ASTM D5185(m) 330	<b>16</b>	62	65
Zinc	ppm ASTM D5185(m) 420	<b>10</b>	50	48
Sulfur	ppm ASTM D5185(m) 3100	<b>1151</b>	2415	2492
Lithium	ppm ASTM D5185(m)	<b>&lt;1</b>	<1	0

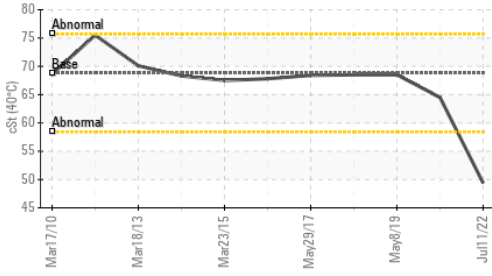
### CONTAMINANTS

method	limit/base	current	history1	history2
Silicon	ppm ASTM D5185(m) >25	<b>&lt;1</b>	<1	<1
Sodium	ppm ASTM D5185(m)	<b>1</b>	3	4
Potassium	ppm ASTM D5185(m) >20	<b>&lt;1</b>	3	2

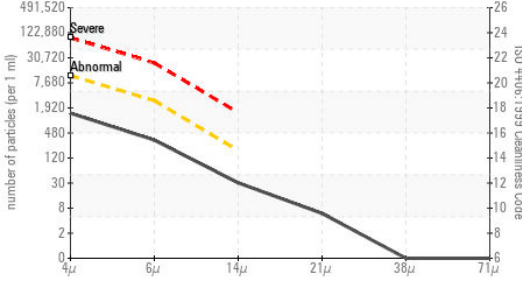


# OIL ANALYSIS REPORT

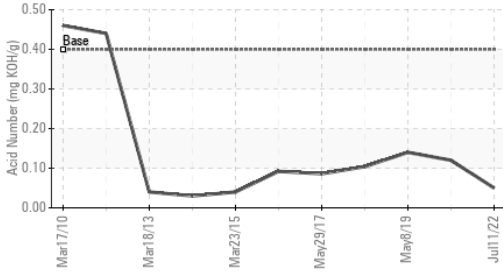
▲ Viscosity @ 40°C



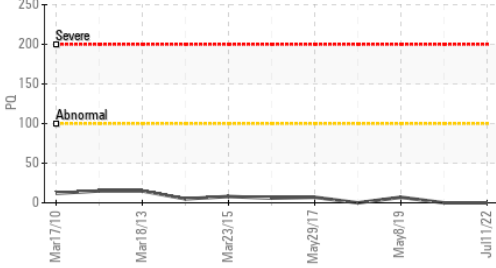
Particle Count



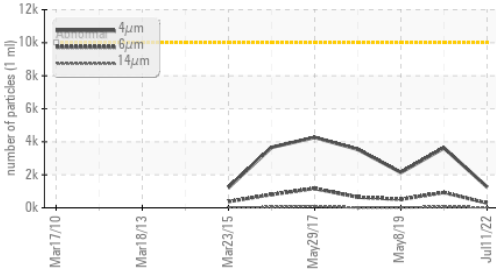
Acid Number



PQ



Particle Trend



FLUID CLEANLINESS	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>10000	<b>1259</b>	3625	2140
Particles >6µm	ASTM D7647	>2500	<b>285</b>	926	513
Particles >14µm	ASTM D7647	>160	<b>27</b>	48	23
Particles >21µm	ASTM D7647	>40	<b>5</b>	11	4
Particles >38µm	ASTM D7647	>10	<b>0</b>	0	0
Particles >71µm	ASTM D7647	>3	<b>0</b>	0	0
Oil Cleanliness	ISO 4406 (c)	>20/18/14	<b>17/15/12</b>	19/17/13	18/16/12

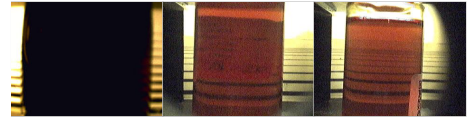
FLUID DEGRADATION	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g ASTM D974*	.40	<b>0.05</b>	0.12	0.140

VISUAL	method	limit/base	current	history1	history2
White Metal	scalar Visual*	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar Visual*	NONE	<b>NONE</b>	NONE	NONE
Precipitate	scalar Visual*	NONE	<b>NONE</b>	NONE	NONE
Silt	scalar Visual*	NONE	<b>NONE</b>	NONE	NONE
Debris	scalar Visual*	NONE	<b>NONE</b>	NONE	NONE
Sand/Dirt	scalar Visual*	NONE	<b>NONE</b>	NONE	NONE
Appearance	scalar Visual*	NORML	<b>NORML</b>	NORML	NORML
Odor	scalar Visual*	NORML	<b>NORML</b>	NORML	NORML
Emulsified Water	scalar Visual*	>2	<b>NEG</b>	NEG	NEG
Free Water	scalar Visual*		<b>NEG</b>	NEG	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt ASTM D7279(m)	68.8	<b>▲ 49.4</b>	64.5	68.5

SAMPLE IMAGES	method	limit/base	current	history1	history2
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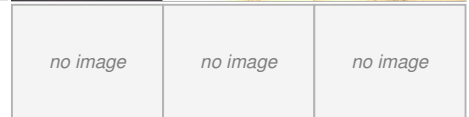
Color



Bottom



MPC



**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9  
**Sample No.** : WC0686272  
**Lab Number** : 02499232  
**Unique Number** : 5424192  
**Test Package** : IND 2 ( Additional Tests: PrtCount )

**Ontario Power Generation**  
 KENORA PRODUCTION CENTRE, 200-60 FOURTEENTH ST N.  
 KENORA, ON  
 CA P9N 4M9  
 Contact: Josh Robinson  
 josh.robinson@opg.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: