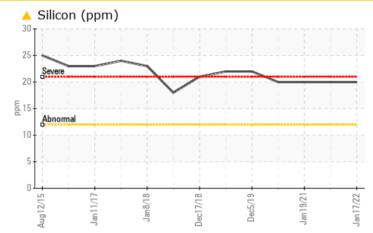
## **PROBLEM SUMMARY**

## NCH G TUBR

Component Bearing Fluid ESSO TERESSO ISO 68 (55 LTR)

#### COMPONENT CONDITION SUMMARY



#### 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.

# PROBLEMATIC TEST RESULTS Sample Status ABNORMAL ABNORMAL ABNORMAL Silicon ppm ASTM D5185(m) >12 ▲ 20 ▲ 20

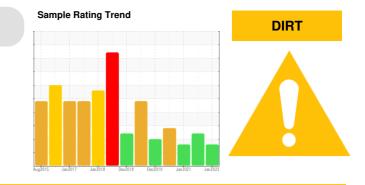
#### Customer Id: NEWSTJ Sample No.: WC0445190 Lab Number: 02473258 Test Package: IND 2



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

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



| RECOMMENDED A   | CTIONS |      |         |  |
|-----------------|--------|------|---------|--|
| Action          | Status | Date | Done By | Description  |
| Resample        |        |      | ?       | We recommend an early resample to monitor this condition.  |
| Check Breathers |        |      | ?       | The air breather requires service. If unrated, we recommend that you replace with a<br>suitable micron rated and/or desiccant air breather. If rated, we recommend that you<br>service/replace the breather. |
| Check Seals     |        |      | ?       | Check seals and/or filters for points of contaminant entry.  |

#### HISTORICAL DIAGNOSIS



#### 14 Jun 2021 Diag: Kevin Marson



Check seals and/or filters for points of contaminant entry. We advise that you perform a filter service, and use offline 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.All component wear rates are normal. Silicon ppm levels are abnormally high. Particles >4 $\mu$ m are abnormally high. Particles >6 $\mu$ m are abnormally high. Elemental level of silicon (Si) above normal indicating ingress of seal material. 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 Jan 2021 Diag: Kevin Marson



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.All component wear rates are normal. Elemental level of silicon (Si) above normal indicating ingress of seal material. The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.





Check seals and/or filters for points of contaminant entry. We advise that you perform a filter service, and use offline 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.All component wear rates are normal. Silicon ppm levels are abnormally high. Particles >4µm are abnormally high. Particles >6µm are abnormally high. Particles >14µm are notably high. Elemental level of silicon (Si) above normal indicating ingress of seal material. The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.





### **OIL ANALYSIS REPORT**

Sample Rating Trend

דפוח

#### Machine Id **NCH G TUBR** Component

#### Bearing Fluid ESSO TERESSO ISO 68 (55 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.

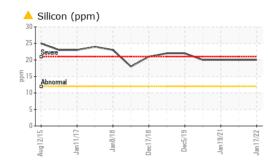
#### Fluid Condition

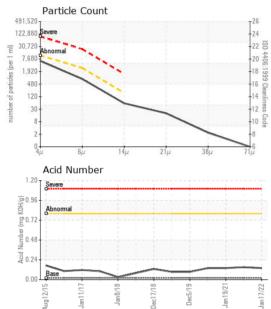
The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

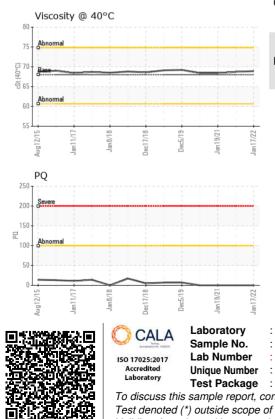
| SIS REPC      | <b>DRT</b>    |               | _             |                         |             | DIRT        |
|---------------|---------------|---------------|---------------|-------------------------|-------------|-------------|
|               |               | Aug2015       | anton Janco B | Dec2018 Dec2019 Jan2027 | Jun2222     |             |
| SAMPLE INFORM | <b>MATION</b> | method        | limit/base    | current                 | history1    | history2    |
| Sample Number |               | Client Info   |               | WC0445190               | WC0327864   | WC0327933   |
| Sample Date   |               | Client Info   |               | 17 Jan 2022             | 14 Jun 2021 | 19 Jan 2021 |
| Machine Age   | days          | Client Info   |               | 0                       | 0           | 0           |
| Oil Age       | days          | Client Info   |               | 0                       | 0           | 0           |
| Oil Changed   | ,             | Client Info   |               | N/A                     | N/A         | N/A         |
| Sample Status |               |               |               | ABNORMAL                | ABNORMAL    | ABNORMAL    |
| CONTAMINATIO  | N             | method        | limit/base    | current                 | history1    | history2    |
| Water         |               | WC Method     | >2            | NEG                     | NEG         | NEG         |
| WEAR METALS   |               | method        | limit/base    | current                 | history1    | history2    |
| PQ            |               | ASTM D8184*   |               | 0                       | 0           | 0           |
| Iron          | ppm           | ASTM D5185(m) | >63           | 3                       | 2           | 2           |
| Chromium      | ppm           | ASTM D5185(m) | 200           | 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) | >2            | <1                      | <1          | <1          |
| Lead          | ppm           | ASTM D5185(m) | >161          | 18                      | 15          | 15          |
| Copper        | ppm           | ASTM D5185(m) | >13           | <1                      | <1          | <1          |
| Tin           | ppm           | ASTM D5185(m) | >27           | <1                      | <1          | <1          |
| 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) | 4.5           | <1                      | <1          | <1          |
| Barium        | ppm           | ASTM D5185(m) | 0.4           | 0                       | 0           | 0           |
| Molybdenum    | ppm           | ASTM D5185(m) | 0             | 0                       | 0           | 0           |
| Manganese     | ppm           | ASTM D5185(m) |               | 0                       | 0           | <1          |
| Magnesium     | ppm           | ASTM D5185(m) | 0             | <1                      | <1          | <1          |
| Calcium       | ppm           | ASTM D5185(m) |               | 2                       | 2           | 2           |
| Phosphorus    | ppm           | ASTM D5185(m) | 0.7           | 5                       | 1           | 1           |
| Zinc          | ppm           | ASTM D5185(m) | 0             | 4                       | 4           | 4           |
| Sulfur        | ppm           | ASTM D5185(m) | 1315          | 1881                    | 1865        | 1899        |
| Lithium       | ppm           | ASTM D5185(m) |               | <1                      | <1          | <1          |
| CONTAMINANTS  | 6             | method        | limit/base    | current                 | history1    | history2    |
| Silicon       | ppm           | ASTM D5185(m) | >12           | <b>2</b> 0              | <b>2</b> 0  | <b>2</b> 0  |
| Sodium        | ppm           | ASTM D5185(m) |               | 2                       | 2           | 2           |
| Potassium     | ppm           | ASTM D5185(m) | >20           | 1                       | <1          | <1          |



## **OIL ANALYSIS REPORT**







| FLUID CLEANLINESS         Particles >4µm         Particles >6µm         Particles >14µm         Particles >14µm         Particles >21µm         Particles >38µm         Particles >71µm         Oil Cleanliness         FLUID DEGRADATION         Acid Number (AN)       mg KOH         VISUAL         White Metal       scala | •   | >10  | current           5419           742           51           17           2           0           20/17/13           current | history1<br>▲ 27510<br>▲ 5296<br>141<br>23<br>1<br>0<br>▲ 22/20/14<br>history1                | history2<br>3352<br>598<br>25<br>6<br>0<br>0<br>0<br>19/16/12 |
|--|---|--|---|---|---|
| Particles >6µm Particles >14µm Particles >14µm Particles >21µm Particles >38µm Particles >71µm Oil Cleanliness FLUID DEGRADATION Acid Number (AN) mg KOH VISUAL  | ASTM D7647<br>ASTM D7647<br>ASTM D7647<br>ASTM D7647<br>ASTM D7647<br>ISO 4406 (c)<br>method<br>/g ASTM D974* | >2500<br>>160<br>>40<br>>10<br>>3<br>>20/18/14<br>limit/base | 742<br>51<br>17<br>2<br>0<br>20/17/13   | <ul> <li>▶ 5296</li> <li>141</li> <li>23</li> <li>1</li> <li>0</li> <li>▶ 22/20/14</li> </ul> | 598<br>25<br>6<br>0<br>0<br>19/16/12                          |
| Particles >14µm<br>Particles >21µm<br>Particles >38µm<br>Particles >71µm<br>Oil Cleanliness<br>FLUID DEGRADATION<br>Acid Number (AN) mg KOH<br>VISUAL  | ASTM D7647<br>ASTM D7647<br>ASTM D7647<br>ISO 4406 (c)<br>method  | >160<br>>40<br>>10<br>>3<br>>20/18/14<br>limit/base          | 51<br>17<br>2<br>0<br>20/17/13  | 141<br>23<br>1<br>0<br>▲ 22/20/14   | 25<br>6<br>0<br>0<br>19/16/12                                 |
| Particles >21μm         Particles >38μm         Particles >71μm         Oil Cleanliness         FLUID DEGRADATION         Acid Number (AN)         VISUAL  | ASTM D7647<br>ASTM D7647<br>ASTM D7647<br>ISO 4406 (c)<br>method<br>/g ASTM D974*                             | >40<br>>10<br>>3<br>>20/18/14<br>limit/base                  | 17<br>2<br>0<br>20/17/13  | 23<br>1<br>0<br>▲ 22/20/14  | 6<br>0<br>0<br>19/16/12                                       |
| Particles >38µm<br>Particles >71µm<br>Oil Cleanliness<br>FLUID DEGRADATION<br>Acid Number (AN) mg KOH<br>VISUAL  | ASTM D7647<br>ASTM D7647<br>ISO 4406 (c)<br>method<br>g ASTM D974*  | >10<br>>3<br>>20/18/14<br>limit/base                         | 2<br>0<br>20/17/13  | 1<br>0<br>▲ 22/20/14  | 0<br>0<br>19/16/12  |
| Particles >71µm<br>Oil Cleanliness<br>FLUID DEGRADATION<br>Acid Number (AN) mg KOH<br>VISUAL   | ASTM D7647<br>ISO 4406 (c)<br>method<br>/g ASTM D974*   | >3<br>>20/18/14<br>limit/base                                | 0<br>20/17/13   | 0<br><b>2</b> 2/20/14   | 0 19/16/12  |
| Oil Cleanliness<br>FLUID DEGRADATION<br>Acid Number (AN) mg KOH<br>VISUAL  | ISO 4406 (c)<br>method<br>/g ASTM D974*   | >20/18/14<br>limit/base                                      | 20/17/13  | ▲ 22/20/14  | 19/16/12  |
| FLUID DEGRADATION<br>Acid Number (AN) mg KOH<br>VISUAL   | method<br>/g ASTM D974*   | limit/base   |   |   |   |
| Acid Number (AN) mg KOH<br>VISUAL  | g ASTM D974*  |  | current   | history1  |   |
| VISUAL   | •   | 0.02   |   |   | history2  |
|  |   | 0.02   | 0.14  | 0.15  | 0.14  |
| White Metal scala  | method  | limit/base   | current   | history1  | history2  |
|  | r Visual*   | NONE   | NONE  | NONE  | NONE  |
| Yellow Metal scala   | r Visual*   | NONE   | NONE  | NONE  | NONE  |
| Precipitate scala  | r Visual*   | NONE   | NONE  | NONE  | NONE  |
| Silt scala   | r Visual*   | NONE   | NONE  | NONE  | NONE  |
| Debris scala   |   | NONE   | NONE  | NONE  | NONE  |
| Sand/Dirt scala  | r Visual*   | NONE   | NONE  | NONE  | NONE  |
| Appearance scala   |   | NORML  | NORML   | NORML   | NORML   |
| Odor scala   |   | NORML  | NORML   | NORML   | NORML   |
| Emulsified Water scala   |   | >2   | NEG   | NEG   | NEG   |
| Free Water scala   |   | ~ _  | NEG   | NEG   | NEG   |
| FLUID PROPERTIES   | method  | limit/base   | current   | history1  | history2  |
| Visc @ 40°C cSt  | ASTM D7279(m)   | 68   | 68.9  | 68.7  | 68.4  |
| SAMPLE IMAGES  | method  | limit/base   | current   | history1  | history2  |
| Color  |   |  |   |   | PU321000  |
| Bottom   |   |  |   |   |   |

 Image: Solution of the state of the sta

#### NEWFOUNDLAND POWER INC.

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Submitted By: Roger Pennell Page 4 of 4