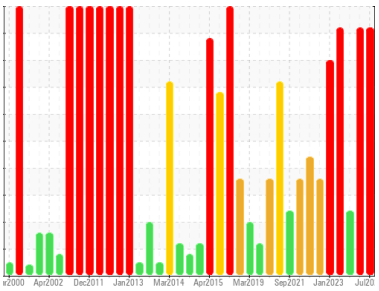
# PROBLEM SUMMARY

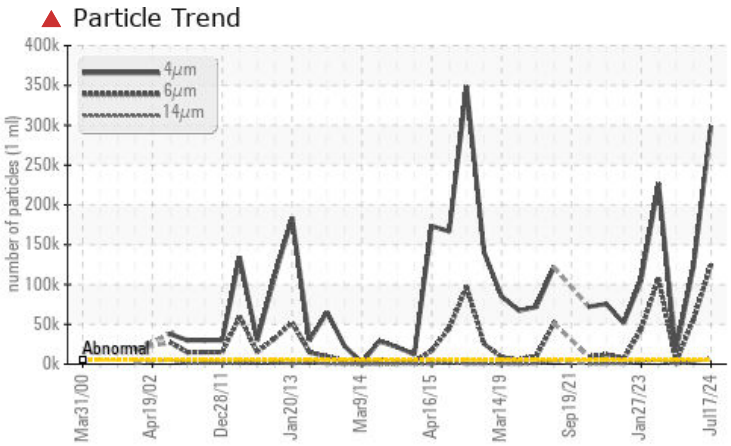
Area
## PUMPHOUSE/CASTER SPRAY WATER PUMPS
Machine Id
## C - Caster Spray Water Electric Pump OB
Component
**Lube System**
Fluid
**PETRO CANADA HYDREX AW 100 (1 GAL)**

**Sample Rating Trend**



**ISO**

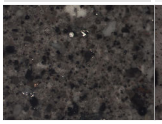
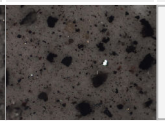
## COMPONENT CONDITION SUMMARY




## RECOMMENDATION

We advise that you check all areas where contaminants can enter the system. We advise that you check for visible metal particles in the oil. 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.

## PROBLEMATIC TEST RESULTS

| Sample Status | | | | **SEVERE** | SEVERE | ABNORMAL |
|---|---|---|---|---|---|---|
| Particles >4µm | | ASTM D7647 | >5000 | ▲ **298953** | ▲ 122281 | ▲ 16442 |
| Particles >6µm | | ASTM D7647 | >1300 | ▲ **124818** | ▲ 56171 | ▲ 2661 |
| Particles >14µm | | ASTM D7647 | >160 | ▲ **7426** | ▲ 2896 | ● 174 |
| Particles >21µm | | ASTM D7647 | >40 | ▲ **1372** | ▲ 464 | 48 |
| Particles >38µm | | ASTM D7647 | >10 | ▲ **51** | ● 17 | 2 |
| Oil Cleanliness | | ISO 4406 (c) | >19/17/14 | ▲ **25/24/20** | ▲ 24/23/19 | ▲ 21/19/15 |
| White Metal | scalar | Visual* | NONE | ▲ **LIGHT** | ▲ VLITE | NONE |
| PrtFilter | | | |  |  | *no image* |


**Customer Id:** LEWBOSC
**Sample No.:** WC0968460
**Lab Number:** 02648510
**Test Package:** IND 2

*To manage this report scan the QR code*

*To discuss the diagnosis or test data:*
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## RECOMMENDED ACTIONS

| Action | Status | Date | Done By | Description |
|---|---|---|---|---|
| Change Filter | --- | --- | ? | We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. |
| Resample | --- | --- | ? | Resample in 30-45 days to monitor this situation. |
| Check Breathers | --- | --- | ? | 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. |
| Check Dirt Access | --- | --- | ? | We advise that you check all areas where contaminants can enter the system. |
| Check For Visual Metal | --- | --- | ? | We advise that you check for visible metal particles in the oil. |
| Filter Fluid | --- | --- | ? | We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. |

## HISTORICAL DIAGNOSIS

ISO

**10 Jan 2024 Diag: Kevin Marson**

We advise that you check all areas where contaminants can enter the system. We advise that you check for visible metal particles in the oil. 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.Light concentration of visible metal present. There is a high amount of particulates (2 to 100 microns in size) present in the oil. The system cleanliness code is much higher than the acceptable limit for the target ISO 4406 cleanliness code. The AN level is acceptable for this fluid. The oil is no longer serviceable as a result of the abnormal and/or severe wear.

view report

WEAR

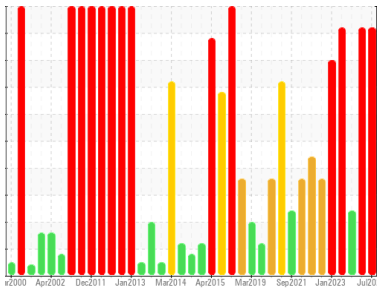
**16 Aug 2023 Diag: Kevin Marson**

We recommend that you drain the oil from the component if this has not already been done. We recommend you service the filters on this component. We recommend an early resample to monitor this condition.Iron ppm levels are abnormal. A sharp increase in the iron level is noted. The low ferrous density (PQ) index indicates the wear metal levels are due to corrosion. There is a moderate amount of silt (particulates < 14 microns in size) present in the oil. The system cleanliness is above the acceptable limit for the target ISO 4406 cleanliness code. The AN level is acceptable for this fluid. The oil is no longer serviceable as a result of the abnormal and/or severe wear.

view report

# OIL ANALYSIS REPORT

Sample Rating Trend



ISO

Area
## PUMPHOUSE/CASTER SPRAY WATER PUMPS
Machine Id
## C - Caster Spray Water Electric Pump OB
Component
**Lube System**
Fluid
**PETRO CANADA HYDREX AW 100 (1 GAL)**

## DIAGNOSIS

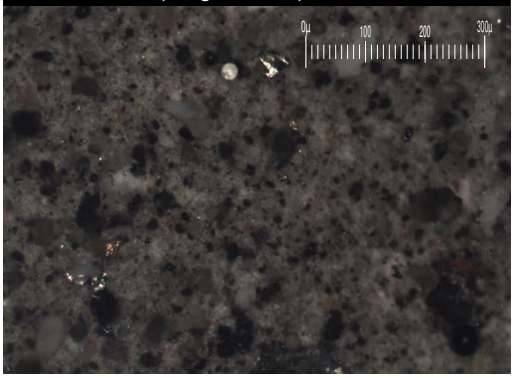
**Recommendation**
We advise that you check all areas where contaminants can enter the system. We advise that you check for visible metal particles in the oil. We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. The air breather requires 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.

**Wear**
Light concentration of visible metal present.

**Contamination**
There is a high amount of particulates (2 to 100 microns in size) present in the oil. The system cleanliness code is much higher than the acceptable limit for the target ISO 4406 cleanliness code.

**Fluid Condition**
The AN level is acceptable for this fluid. The oil is no longer serviceable as a result of the abnormal and/or severe wear.

Particle Filter (Magn: 100 x)



| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **WC0968460** | WC0898665 | WC0850119 |
| Sample Date | | Client Info | | **17 Jul 2024** | 10 Jan 2024 | 16 Aug 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 | | | | **SEVERE** | SEVERE | ABNORMAL |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Water | | WC Method | >1 | **NEG** | NEG | NEG |

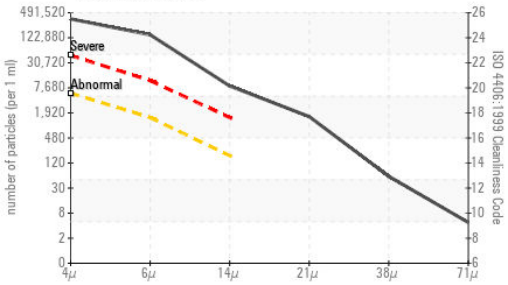
| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| PQ | | ASTM D8184* | >DFLT | **0** | 0 | 0 |
| Iron | ppm | ASTM D5185(m) | >20 | **8** | 6 | ▲ 35 |
| Chromium | ppm | ASTM D5185(m) | >20 | **0** | 0 | <1 |
| Nickel | ppm | ASTM D5185(m) | >20 | **<1** | 0 | <1 |
| Titanium | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Silver | ppm | ASTM D5185(m) | | **1** | 0 | <1 |
| Aluminum | ppm | ASTM D5185(m) | >20 | **2** | 1 | <1 |
| Lead | ppm | ASTM D5185(m) | >20 | **0** | <1 | <1 |
| Copper | ppm | ASTM D5185(m) | >20 | **8** | 6 | 4 |
| 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) | 0 | **<1** | 0 | 0 |
| Barium | ppm | ASTM D5185(m) | 0 | **<1** | 0 | <1 |
| Molybdenum | ppm | ASTM D5185(m) | 0 | **0** | 0 | 0 |
| Manganese | ppm | ASTM D5185(m) | 0 | **0** | 0 | <1 |
| Magnesium | ppm | ASTM D5185(m) | 0 | **<1** | <1 | <1 |
| Calcium | ppm | ASTM D5185(m) | 50 | **44** | 48 | 47 |
| Phosphorus | ppm | ASTM D5185(m) | 330 | **401** | 336 | 347 |
| Zinc | ppm | ASTM D5185(m) | 430 | **389** | 426 | 404 |
| Sulfur | ppm | ASTM D5185(m) | 760 | **2553** | 2625 | 2509 |
| Lithium | ppm | ASTM D5185(m) | | **<1** | <1 | <1 |

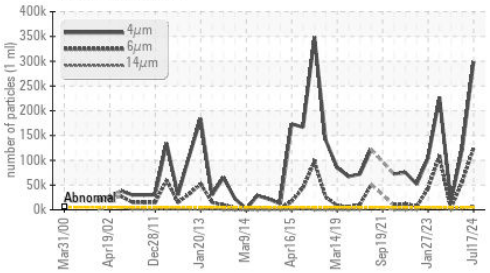
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185(m) | >15 | **6** | 6 | 3 |
| Sodium | ppm | ASTM D5185(m) | | **<1** | <1 | <1 |
| Potassium | ppm | ASTM D5185(m) | >20 | **<1** | <1 | 0 |

# OIL ANALYSIS REPORT

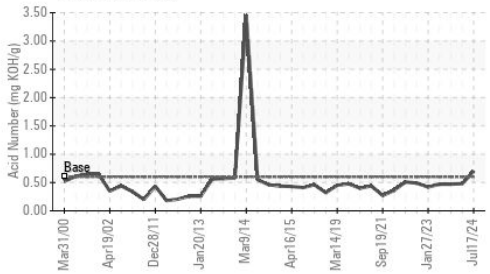
Particle Count



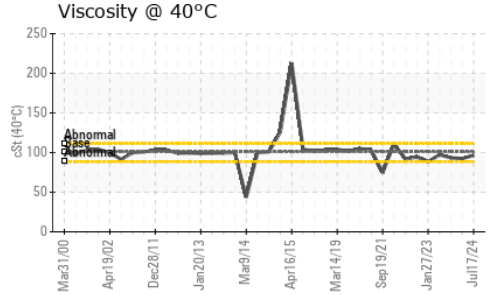

Particle Trend



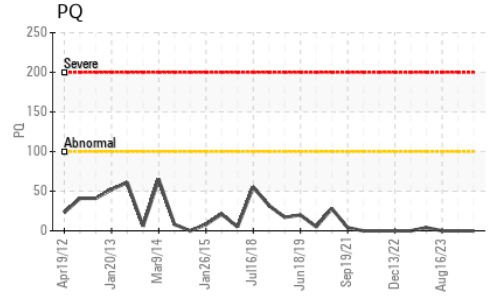

Acid Number




Viscosity @ 40°C




PQ

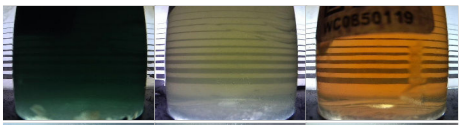
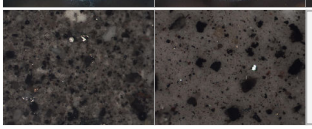



| FLUID CLEANLINESS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Particles >4µm | | ASTM D7647 | >5000 | ▲ **298953** | ▲ 122281 | ▲ 16442 |
| Particles >6µm | | ASTM D7647 | >1300 | ▲ **124818** | ▲ 56171 | ▲ 2661 |
| Particles >14µm | | ASTM D7647 | >160 | ▲ **7426** | ▲ 2896 | ● 174 |
| Particles >21µm | | ASTM D7647 | >40 | ▲ **1372** | ▲ 464 | 48 |
| Particles >38µm | | ASTM D7647 | >10 | ▲ **51** | ● 17 | 2 |
| Particles >71µm | | ASTM D7647 | >3 | **4** | 4 | 0 |
| Oil Cleanliness | | ISO 4406 (c) | >19/17/14 | ▲ **25/24/20** | ▲ 24/23/19 | ▲ 21/19/15 |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Acid Number (AN) | mg KOH/g | ASTM D974* | 0.60 | **0.70** | 0.48 | 0.47 |

| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | Visual* | NONE | ▲ **LIGHT** | ▲ VLITE | 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 | **LIGHT** | VLITE | VLITE |
| 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* | >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) | 101 | **96.5** | 92.5 | 93.4 |

| SAMPLE IMAGES | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|
| Color | | |  | | |
| Bottom | | |  | | |
| PrtFilter | | |  *no image* | | |

ISO 17025:2017 Accredited Laboratory

**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
**Sample No.** : WC0968460
**Lab Number** : 02648510
**Unique Number** : 5814062
**Test Package** : IND 2 ( Additional Tests: Bottom, BottomAnalysis, FILTERPATCH, PQ, PrtFilter, TAN Mon)

**Received** : 17 Jul 2024
**Tested** : 21 Jul 2024
**Diagnosed** : 21 Jul 2024 - Kevin Marson

**STELCO - BOSC - Basic Oxygen Slab Caster**
2330 Regional Road #3, Door: BOSC8
NANTICOKE, ON
CA N0A 1L0
Contact: Tom Walden
Thomas.Walden@stelco.com
T: (519)587-4541
F: (519)587-7702

*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.*

Report Id: LEWBOSC [WCAMIS] 02648510 (Generated: 07/21/2024 16:32:16) Rev: 1

Submitted By: Bob Melanson