

OIL ANALYSIS REPORT









Haul Truck HT2404

Component **Rear Left Wheel Hub**

PETRO CANADA TRA

DIAGNOSIS

Recommendation

Confirm the source of the lubricant being utilized for top-up/fill. Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

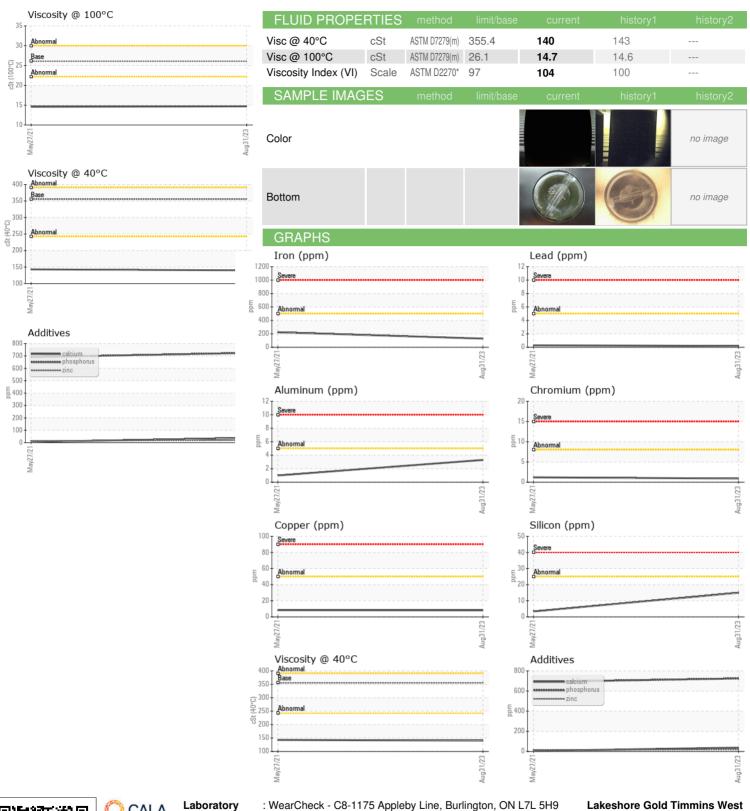
Fluid Condition

Additive levels indicate the addition of a different brand, or type of oil. Viscosity of sample indicates oil is within SAE 80W90 range, advise investigate. The condition of the oil is acceptable for the time in service.

| SAMPLE INFORMATION method limit/base current history1 | | | | | | LTR) | XON 85W140 (|
|---|------------|-------------|-------------|-----------------|---------------|--------|------------------|
| Sample Number | 1 history2 | history1 | | , | method | | ` |
| Sample Date Client Info 31 Aug 2023 27 May 2021 | | PC0047176 | PC0050651 | | Client Info | | Sample Number |
| Machine Age | 1 | 27 May 2021 | 31 Aug 2023 | | Client Info | | |
| Dil Age | | , | • | | | hrs | • |
| Dil Changed Cilient Info N/A NORMAL NORMAL | | | | | | | |
| NORMAL NORMAL NORMAL | | | | | | 0 | • |
| Chromium | | | | | | | |
| Chromium | 1 history2 | history1 | current | limit/base | method | S | WEAR METALS |
| Nickel | | 223 | 129 | >500 | ASTM D5185(m) | ppm | Iron |
| ASTM D5185(m) >5 | | 1 | <1 | >8 | ASTM D5185(m) | | Chromium |
| ASTM D5185(m) Compared to the compared to | | <1 | <1 | >5 | , , | | Nickel |
| Salver | | | | | . , | • • | |
| Aluminum | | | | | , | | |
| Dead | | | | \5 | | • • | |
| Description | | | - | | (/ | | |
| Antimony | | | | | . , | • • | |
| Antimony | | | | >50 | () | | • • |
| Vanadium ppm ASTM D5185(m) 0 <1 Beryllium ppm ASTM D5185(m) 0 0 Cadmium ppm ASTM D5185(m) 0 0 Cadmium ppm ASTM D5185(m) 0 0 Boron ppm ASTM D5185(m) 0 4 32 Boron ppm ASTM D5185(m) 0 4 32 Molybdenum ppm ASTM D5185(m) 0 4 32 Manganese ppm ASTM D5185(m) 0 3 <1 2 Magnesium ppm ASTM D5185(m) 0 3 <1 2 Magnesium ppm ASTM D5185(m) 0 38 7 7 Phosphorus ppm ASTM D5185(m) 0 38 7 224 690 Zinc ppm ASTM D5185(m) 988 724 690 21 3 Zinc ppm ASTM D5185(m) 24530 232228 | | | | | . , | | |
| ASTM D5185(m) D | | | | >5 | 1 | | • |
| Cadmium ppm ASTM D5185(m) 0 0 ADDITIVES method limit/base current history1 Boron ppm ASTM D5185(m) 243 46 40 Barium ppm ASTM D5185(m) 0 4 32 Molybdenum ppm ASTM D5185(m) 0 <1 | | | | | . , | ppm | |
| ADDITIVES | | 0 | 0 | | ASTM D5185(m) | ppm | • |
| Decision Decision | | 0 | 0 | | ASTM D5185(m) | ppm | Cadmium |
| Delta | 1 history2 | history1 | current | limit/base | method | | ADDITIVES |
| Molybdenum ppm ASTM D5185(m) 0 <1 Manganese ppm ASTM D5185(m) 0 3 <1 | | 40 | 46 | 243 | ASTM D5185(m) | ppm | Boron |
| Manganese ppm ASTM D5185(m) 1 2 Magnesium ppm ASTM D5185(m) 0 3 <1 Calcium ppm ASTM D5185(m) 0 38 7 Phosphorus ppm ASTM D5185(m) 988 724 690 Zinc ppm ASTM D5185(m) 0 19 13 Sulfur ppm ASTM D5185(m) 24530 23228 20769 Lithium ppm ASTM D5185(m) 24530 23228 20769 Lithium ppm ASTM D5185(m) 25 15 3 Solicon ppm ASTM D5185(m) >25 15 3 Solicon ppm ASTM D5185(m) >20 <1 <1 VISUAL method limit/base current history1 VISUAL method limit/base current history1 Vitile Metal scalar Visual* NONE NONE NONE Vellow Met | | 32 | 4 | 0 | ASTM D5185(m) | ppm | Barium |
| Magnesium ppm ASTM D5185(m) 0 3 <1 Calcium ppm ASTM D5185(m) 0 38 7 Phosphorus ppm ASTM D5185(m) 988 724 690 Zinc ppm ASTM D5185(m) 0 19 13 Sulfur ppm ASTM D5185(m) 24530 23228 20769 Lithium ppm ASTM D5185(m) 24530 23228 20769 Lithium ppm ASTM D5185(m) 25 15 3 CONTAMINANTS method limit/base current history1 CONTAMINANTS method limit/base c | | <1 | 0 | | ASTM D5185(m) | ppm | Molybdenum |
| Calcium ppm ASTM D5185(m) 0 38 7 Phosphorus ppm ASTM D5185(m) 988 724 690 Zinc ppm ASTM D5185(m) 0 19 13 Sulfur ppm ASTM D5185(m) 24530 23228 20769 Lithium ppm ASTM D5185(m) 24530 23228 20769 Lithium ppm ASTM D5185(m) 24530 23228 20769 Lithium ppm ASTM D5185(m) 25 15 3 Solicon ppm ASTM D5185(m) >25 15 3 Soldium ppm ASTM D5185(m) >20 <1 | | 2 | 1 | | ASTM D5185(m) | ppm | Manganese |
| Phosphorus ppm ASTM D5185(m) 988 724 690 Zinc ppm ASTM D5185(m) 0 19 13 Sulfur ppm ASTM D5185(m) 24530 23228 20769 Lithium ppm ASTM D5185(m) 24530 23228 20769 Lithium ppm ASTM D5185(m) 25 1 <1 | | <1 | 3 | 0 | ASTM D5185(m) | ppm | Magnesium |
| Phosphorus ppm ASTM D5185(m) 988 724 690 Zinc ppm ASTM D5185(m) 0 19 13 Sulfur ppm ASTM D5185(m) 24530 23228 20769 Lithium ppm ASTM D5185(m) 21 <1 | | 7 | 38 | 0 | ASTM D5185(m) | ppm | Calcium |
| 2016 | | 690 | | | , , | | Phosphorus |
| Sulfur | | | | | . , | | |
| CONTAMINANTS method limit/base current history1 Golium ppm ASTM D5185(m) >25 15 3 Godium ppm ASTM D5185(m) 1 1 1 Potassium ppm ASTM D5185(m) >20 <1 | | | | | , | | |
| CONTAMINANTS method limit/base current history1 Silicon ppm ASTM D5185(m) >25 15 3 Sodium ppm ASTM D5185(m) >20 1 1 Potassium ppm ASTM D5185(m) >20 <1 | | | | 24000 | . , | | |
| Silicon | | | | liusit/le e e e | | | |
| Sodium ppm ASTM D5185(m) 1 1 1 Potassium ppm ASTM D5185(m) >20 <1 | | | | | | | |
| Potassium ppm ASTM D5185(m) >20 <1 <1 VISUAL method limit/base current history1 White Metal scalar Visual* NONE NONE NONE Precipitate scalar Visual* NONE NONE NONE Silt scalar Visual* NONE NONE NONE Debris scalar Visual* NONE NONE LIGHT Debris scalar Visual* NONE NONE NONE Sand/Dirt scalar Visual* NONE NONE NONE Sand/Dirt scalar Visual* NONE NONE NONE Depearance scalar Visual* NONE NONE NONE Depearance scalar Visual* NORML NORML NORML Debris scalar Visual* NORML NORML NORML | | | | >20 | . , | • • | |
| VISUAL method limit/base current history1 White Metal scalar Visual* NONE NONE NONE Vellow Metal scalar Visual* NONE NONE NONE Precipitate scalar Visual* NONE NONE NONE Silt scalar Visual* NONE NONE LIGHT Debris scalar Visual* NONE VLITE NONE Sand/Dirt scalar Visual* NONE NONE NONE Appearance scalar Visual* NONE NONE NONE Debris NONE NONE NONE NONE NONE NONE NONE NONE | | | | 00 | , | | |
| Mhite Metal scalar Visual* NONE NONE NONE Precipitate scalar Visual* NONE NONE NONE Silt scalar Visual* NONE NONE NONE Debris scalar Visual* NONE NONE LIGHT Debris scalar Visual* NONE VLITE NONE Sand/Dirt scalar Visual* NONE NONE NONE Depearance scalar Visual* NONE NONE NONE NONE NONE NONE NONE NONE NONE NORML NORML NORML | | <1 | <1 | | ASTM D5185(m) | ppm | |
| Vellow Metal scalar Visual* NONE NONE NONE Precipitate scalar Visual* NONE NONE NONE Silt scalar Visual* NONE NONE LIGHT Debris scalar Visual* NONE VLITE NONE Sand/Dirt scalar Visual* NONE NONE NONE Appearance scalar Visual* NORML NORML NORML Odor scalar Visual* NORML NORML NORML | 1 history2 | | | | method | | VISUAL |
| Precipitate scalar Visual* NONE NONE NONE Silt scalar Visual* NONE NONE LIGHT Debris scalar Visual* NONE VLITE NONE Sand/Dirt scalar Visual* NONE NONE NONE Appearance scalar Visual* NORML NORML Odor scalar Visual* NORML NORML NORML | | NONE | NONE | NONE | Visual* | scalar | White Metal |
| Silt scalar Visual* NONE NONE LIGHT Debris scalar Visual* NONE VLITE NONE Sand/Dirt scalar Visual* NONE NONE NONE Appearance scalar Visual* NORML NORML Odor scalar Visual* NORML NORML NORML | | NONE | | NONE | Visual* | scalar | ellow Metal |
| Debris scalar Visual* NONE VLITE NONE Sand/Dirt scalar Visual* NONE NONE NONE Appearance scalar Visual* NORML NORML NORML Odor scalar Visual* NORML NORML NORML | | NONE | NONE | NONE | Visual* | scalar | Precipitate |
| Sand/Dirt scalar Visual* NONE NONE NONE Appearance scalar Visual* NORML NORML NORML Odor scalar Visual* NORML NORML NORML | | LIGHT | NONE | NONE | Visual* | scalar | Silt |
| Appearance scalar Visual* NORML NORML NORML Odor scalar Visual* NORML NORML NORML | | NONE | VLITE | NONE | Visual* | scalar | Debris |
| Appearance scalar Visual* NORML NORML NORML Odor scalar Visual* NORML NORML NORML | | NONE | NONE | NONE | Visual* | scalar | Sand/Dirt |
| Odor scalar Visual* NORML NORML NORML | | | | | | | |
| | | | | | | | |
| INDIANGU VVOIGI SUOM VISUAL SUZ INCLE | | NEG | NEG | >0.2 | Visual* | scalar | Emulsified Water |
| Free Water scalar Visual* NEG NEG | | | | | | | |



OIL ANALYSIS REPORT





CALA ISO 17025:2017 Accredited Laboratory

Laboratory Sample No. Lab Number Unique Number

: PC0050651

Received : 02583278 Diagnosed : 5644343

Diagnostician : Bill Quesnel Test Package : MOB 1 (Additional Tests: KV100, VI)

: 18 Sep 2023

: 19 Sep 2023

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.

Lakeshore Gold Timmins West

Timmins, ON CA

Contact: Adam Koscielak adam.koscielak@HFSinclair.com

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