

NORMAL

Machine Id

CAPTIS ENERGY ENG 2 (S/N 1251397)

Natural Gas Engine

MAHLER Q8 Mahler G8 SAE 40 (--- GAL)

DIAGNOSIS

Recommendation

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

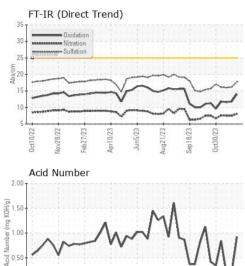
The BN result indicates that there is suitable alkalinity remaining in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

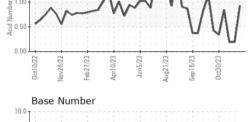
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| t2022 Nov2022 Feb20 | 023 Apr2023 Jun2023 Aug2023 Sep2023 Oct2023 | |

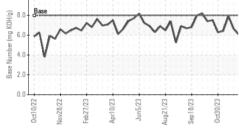
SAMPLE INFORMATION method WC0914343 WC0835566 WC0835558 Sample Number **Client Info** Sample Date Client Info 08 Apr 2024 11 Dec 2023 04 Dec 2023 24310 Machine Age hrs **Client Info** 22047 21879 Oil Age hrs Client Info 3717 1440 1272 Oil Changed N/A **Client Info** N/A N/A Sample Status NORMAL NORMAL NORMAL CONTAMINATION Water >0.1 NEG NEG NEG WC Method WEAR METALS ppm ASTM D5185m >50 4 0 2 Iron Chromium ASTM D5185m >4 <1 0 <1 ppm Nickel 0 0 ppm ASTM D5185m >2 <1 Titanium ASTM D5185m <1 0 ppm <1 0 Silver ASTM D5185m >3 n 0 ppm Aluminum ppm ASTM D5185m >9 3 2 3 ASTM D5185m >30 2 0 Lead <1 ppm >35 <1 0 0 Copper ppm ASTM D5185m Tin ASTM D5185m >4 1 ~1 0 ppm Vanadium 0 0 ppm ASTM D5185m <1 0 Cadmium 0 ppm ASTM D5185m 1 0 Boron ASTM D5185m <1 <1 ppm 0 Barium ppm ASTM D5185m 0 0 Molvbdenum ASTM D5185m 3 0 2 ppm ASTM D5185m 1 <1 Manganese ppm <1 Magnesium ASTM D5185m 10 15 0 ppm 2257 Calcium ASTM D5185m 2229 ppm 2471 Phosphorus ASTM D5185m 443 452 426 ppm Zinc ppm ASTM D5185m 499 539 568 Sulfur ASTM D5185m 2338 2494 2752 ppm 5 7 Silicon ppm ASTM D5185m >+100 5 Sodium ASTM D5185m 0 0 ppm <1 Potassium ASTM D5185m >20 2 2 2 ppm Soot % % *ASTM D7844 0 0 0 Nitration Abs/cm *ASTM D7624 8.1 7.5 7.5 >20 16.2 Sulfation *ASTM D7415 Abs/.1mm >30 17.7 16.0 FLUID DEGRADATION 11.6 Oxidation Abs/.1mm *ASTM D7414 >25 14.1 11.8 Acid Number (AN) mg KOH/g ASTM D8045 0.92 0.19 0.19 Base Number (BN) mg KOH/g ASTM D2896 8.0 6.05 6.63 7.93

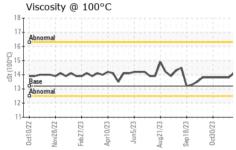


OIL ANALYSIS REPORT









| VISUA | 1 | | | ~ | nothod | 12 | | | rent | | histo | rv1 | | b. | story |
|---|--------------|-----------|-----------------|----------|----------------------|---------------------|---|---|--------------------|---|-------------------|---------|------------|------------|---|
| VISUP | <u>الـ</u> | | | П | nethod | limit/ba | ase | cui | | | 1110101 | i y i | | ni | |
| White M | etal | | scalar | *V | isual | NONE | | NON | E | Ν | IONE | | | NO | NE |
| Yellow N | letal | | scalar | *V | isual | NONE | | NON | E | N | IONE | | | NO | NE |
| Precipita | te | | scalar | *V | isual | NONE | | NON | E | N | IONE | | | NO | NE |
| Silt | | | scalar | *V | isual | NONE | | NON | E | N | IONE | | | NO | NE |
| Debris | | | scalar | *V | isual | NONE | | NON | | N | IONE | | | NO | NE |
| Sand/Dir | ť | | scalar | *V | isual | NONE | | NON | E | | IONE | | | NO | |
| Appeara | nce | | scalar | *V | isual | NORML | | NOR | | | IORM | | | | RML |
| Odor | | | scalar | | isual | NORML | - | NOR | ML | | IORM | L | | | RML |
| Emulsifie | | r | scalar | | isual | >0.1 | | NEG | | | IEG | | | NE | |
| Free Wa | ter | | scalar | *V | isual | | | NEG | | N | IEG | | | NE | G |
| FLUID | PROPE | ERTI | ES | n | nethod | limit/ba | ase | cui | rent | | histo | ry1 | | hi | story |
| Visc @ | | | cSt | AS | TM D445 | 13.2 | | 14.1 | | 1 | 3.8 | | | 13.8 | 8 |
| GRAP | | | | | | | | | | | | | | | |
| Iron (p | opm) | | | | | | 0.0 | _ead(Severe | ppm) | | | | | | |
| 80 - Severe | | | | | | | 50- | 3-1-1-0 | | | | | | | |
| E 60 Abnormal | | | | | | | 40 - E 20 | Abnormal | | | | | | | |
| Abnormal | | | | | | | 튭 30 - c 20 | | | | | | 111 | | |
| 20- | | | | | | | 10 | | | | | | | | |
| 0 | | | | <u></u> | <u> </u> | 3 | 0 | ~ | m | m | | | m | m | en |
| 0ct10/22 Vov28/22 | -eb27/23 | Apr10/23 | Jun5/23 | Aug21/23 | Sep 18/23 | ct30/2 | 20/01-00 | UC(10/22 | Feb 27/23 | Apr10/23 | Jun5/23 | | Aug21/23 | Sep 1 8/23 | 0ct30/23 |
| 0 N | Ľ. | A | | Au | s o | - | Ċ | 0 1 | ů. | | 7 | | AL | Se | Ō |
| A | 100 (000 | m) | | | | | | hrom | ium /- | in march | | | | | |
| Alumir ²⁰ T | ium (ppi | m) | | | | | о 8 т | Chrom | ium (p | opm) | | | | | |
| | ium (ppi | m) | | | | | ⁸ T | Chrom Severe | ium (p | opm) | | | | | |
| 20 15 - Severe | ium (ppi | m) | | | | | 8 6 - 0 | | ium (p | opm) | | | | | |
| 15 - Severe | ium (ppi | m) | | | | | 6 - 0 Md 4 - 0 | Severe | iium (p | opm) | | | | | |
| 20 15 Severe E 10 Abnormal 5 | um (ppi | m) | M | ~ | ٨~ | | 8 - 6 - 6 Ed. 4 - 6 2 | Severe | ium (p | opm) | | | ~ | | |
| 20 15 Severe E 10 Abnormal | · | ~ | | 23 2 | M~ | | 8 6 - 0 8 4 - 0 2 | Severe Abnormal | | ~~~ | 23 | | 23+2 | 23 | 23 |
| 20 15 Severe E 10 Abnormal | · | ~ | Jun5/23 - 5 | ug21/23 | Sep18/23 | | 8 - 6 - 6 Ed. 4 - 6 2 | Severe Abnormal | | ~~~ | Jun5/23 | | wg21/23 | Sep 18/23 | 0ct30/23 |
| Abnormal 5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | Feb27/23 + { | Apr10/23 | Jun5/23 - 55 | Aug21/23 | Sep 18/23 | | | Abnormal | Feb27/23 | Apr10/23 | Jun5/23 | ~ | Aug21/23 | Sep 18/23 | 0ct30/23 |
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| Abnomal 5 0 Coppe | Feb27/23 + { | Apr10/23 | Jun5/23 - 55 | Aug21/23 | Sep18/23 | | | Abnormal | Feb27/23 | Apr10/23 | Jun5/23 | | Aug21/23 | Sep 18/23 | 0ct30/23 |
| 20 15 Severe 10 20 15 Severe 20 20 20 20 20 20 20 20 20 20 | Feb27/23 + { | Apr10/23 | Jun5/23 | Aug21/23 | Sep 18/23 | | | Abnormal | Feb27/23 | Apr10/23 | Jun5/23 | | Aug21/23 | Sep18/23 | 0ct30/23 |
| Abnormal | Feb27/23 + { | Apr10/23 | Jun5/23 | Aug21/23 | Sep 18/23 | | | Severe Abnormal | Feb27/23 | Apr10/23 | Jun5/23 | | Aug21/23 | Sep18/23 | 0ct30/23 |
| 20 15 40 Coppe 80 60 40 20 40 20 | Feb27/23 + { | Apr10/23 | | Aug21/23 | Sap 18/23 | | | Severe Abnormal | Feb27/23 | Apr10/23 | Jun5/23 | ~ | Aug21/23 + | Sep18/23 | 0ct30/23 |
| 20 15 Severe Land 4 4 4 4 4 4 5 5 6 7 7 7 7 7 7 7 7 7 7 7 7 7 | Heb21/23 | Apr10/23 | | ~~~ | | | | Severe Abnormal Silicon Severe | (ppm) | Apr10/23 | × | 5 | 1 | | |
| 20 15 Severe Abnormal 5 0 15 0 15 0 0 0 0 0 0 0 0 0 0 0 0 0 | Heb21/23 | Apr10/23 | Jun5/23 Jun5/23 | Aug21/23 | Sep18/23 Sep18/23 | | | Severe Abnormal Silicon Severe | (ppm) | Apr10/23 | Jun5/23 + C2/2mJL | 5 | 1 | Sep18/23 | 0ct30/23 0 0ct30/20 0 |
| 20 15 Metal 10 5 0 7 7 7 7 7 7 7 7 7 7 7 7 7 | Heb21/23 | April0/23 | | ~~~ | | | 8 6 2 2 0 200 150 50 50 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | Abnomal Coloren | Feb27/23 | April0/23 April0/23 April0/23 April0/23 | × | 5 | Aug21/23 | | |
| 20 15 Monormal 5 0 20 15 Abnormal 5 0 20 0 20 0 20 0 20 0 20 0 20 0 20 0 20 0 20 0 20 0 20 0 20 0 20 0 20 0 20 0 20 0 20 0 0 0 0 20 0 10 0 0 20 0 10 0 0 0 0 0 0 0 0 0 0 0 0 0 | Feb27/23 | April0/23 | | ~~~ | | | | Annormal 2770000 Silecom Annormal 27700000 27700000 27700000 27700000 27700000 27700000 27700000 277000000 2770000000 2770000000 2770000000000 | (ppm) | April0/23 April0/23 April0/23 April0/23 | × | 5 | 1 | | |
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| 20 15 Severe 40 Coppe 40 Coppe 40 Coppe 40 Coppe 40 Coppe 40 Coppe 40 Coppe 40 Coppe 40 Coppe | Feb27/23 | April0/23 | | ~~~ | | | | Annormal 2770000 Silecom Annormal 27700000 27700000 27700000 27700000 27700000 27700000 27700000 277000000 2770000000 2770000000 2770000000000 | Feb27/23 | April0/23 April0/23 April0/23 April0/23 | × | 5 | 1 | | |
| 20 15 Meters 10 40 Coppe 80 Coppe | Feb27/23 | April0/23 | | ~~~ | | | 8 6 4 4 2 2 2 2 2 2 2 2 2 2 2 2 2 | Annormal 2770000 Silecom Annormal 27700000 27700000 27700000 27700000 27700000 27700000 27700000 277000000 2770000000 2770000000 2770000000000 | Feb27/23 | April0/23 April0/23 April0/23 April0/23 | × | 5 | 1 | | |
| 20 15 Severe Made 10 Abnormal 5 0 15 0 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe 80 Coppe Coppe 80 Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Coppe Cop | r (ppm) | April0/23 | | ~~~ | | Citation (Citation) | 8 6 4 2 2 0 2000 150 150 150 150 150 150 150 150 150 | Ahnomal Silicon Silicon Base I Base | (ppm) Henc21/23 | April0/23 April0/23 April0/23 April0/23 | × | <u></u> | 1 | | |

: 12 Apr 2024

: 15 Apr 2024 - Sean Felton Unique Number : 10976772 Diagnosed Test Package : MOB 2 Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369.

Lab Number : 06146694

* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Tested

Report Id: CUBALP [WUSCAR] 06146694 (Generated: 04/15/2024 15:40:31) Rev: 1

Contact/Location: ED LEWIS - CUBALP

ed.lewis@cubedistrictenergy.com

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ALPHARETTA, GA

Contact: ED LEWIS