

## **OIL ANALYSIS REPORT**

#### Sample Rating Trend

NORMAL

#### Machine DAVI DAVI PLATE ROLL (S/N 21640062) Component

**Hydraulic System** 

PETRO CANADA HYDREX AW 46 (--- GAL)

#### Recommendation

Resample at the next service interval to monitor. 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

The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

|   |   |  |   | Mar2024  |  |   |
|---|---|--|---|--|--|---|
| SAMPLE INFORM   | IATION  | method   | limit/base  | current  | history1   | history2  |
| Sample Number   |   | Client Info  |   | WC0716447  |  |   |
| Sample Date   |   | Client Info  |   | 25 Mar 2024  |  |   |
| Machine Age   | 1/50  | Client Info  |   | 25 Mar 2024<br>7   |  |   |
| 0   | yrs   | Client Info  |   | 1  |  |   |
| Oil Age   | yrs   | Client Info  |   |  |  |   |
| Oil Changed<br>Sample Status  |   | Client into  |   | Changed<br>NORMAL  |  |   |
|   |   |  | 1   |  |  |   |
| CONTAMINATION<br>Water  | N   | method   | limit/base  | current  | history1   | history2  |
|   |   | WC Method  |   | NEG  |  |   |
| WEAR METALS   |   | method   | limit/base  | current  | history1   | history2  |
| Iron  | ppm   | ASTM D5185(m)  | >20   | 0  |  |   |
| Chromium  | ppm   | ASTM D5185(m)  |   | 0  |  |   |
| Nickel  | ppm   | ASTM D5185(m)  | >20   | 0  |  |   |
| Titanium  | ppm   | ASTM D5185(m)  |   | 0  |  |   |
| Silver  | ppm   | ASTM D5185(m)  |   | 0  |  |   |
| Aluminum  | ppm   | ASTM D5185(m)  | >20   | 0  |  |   |
| Lead  | ppm   | ASTM D5185(m)  | >20   | 0  |  |   |
| Copper  | ppm   | ASTM D5185(m)  | >20   | 0  |  |   |
| Tin   | ppm   | ASTM D5185(m)  | >20   | 0  |  |   |
| Antimony  | ppm   | ASTM D5185(m)  |   | 0  |  |   |
| /anadium  | ppm   | ASTM D5185(m)  |   | 0  |  |   |
| Beryllium   | ppm   | ASTM D5185(m)  |   | 0  |  |   |
| Cadmium   | ppm   | ASTM D5185(m)  |   | 0  |  |   |
| ADDITIVES   |   | method   | limit/base  | current  | history1   | history2  |
| Boron   | ppm   | ASTM D5185(m)  | 0   | 0  |  |   |
| Barium  | ppm   | ASTM D5185(m)  | 0   | 0  |  |   |
| Molybdenum  |   |  |   |  |  |   |
| worybuenum  | ppm   | ASTM D5185(m)  | 0   | 0  |  |   |
|   | ppm<br>ppm                                    | ASTM D5185(m)<br>ASTM D5185(m)   |   | 0  |  |   |
| Vanganese   |   | . ,  |   | -  |  |   |
| Manganese<br>Magnesium  | ppm   | ASTM D5185(m)  | 0<br>0  | 0  |  |   |
| Manganese<br>Magnesium<br>Calcium   | ppm<br>ppm                                    | ASTM D5185(m)<br>ASTM D5185(m)   | 0<br>0  | 0<br><1  |  |   |
| Manganese<br>Magnesium<br>Calcium<br>Phosphorus   | ppm<br>ppm<br>ppm                             | ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)  | 0<br>0<br>50  | 0<br><1<br>54  |  |   |
| Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc   | ppm<br>ppm<br>ppm<br>ppm                      | ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)   | 0<br>0<br>50<br>330   | 0<br><1<br>54<br>337   |  |   |
| Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur   | ppm<br>ppm<br>ppm<br>ppm<br>ppm               | ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)  | 0<br>0<br>50<br>330<br>430  | 0<br><1<br>54<br>337<br>435  |  | <br><br>  |
| Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur   | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm | ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)   | 0<br>0<br>50<br>330<br>430  | 0<br><1<br>54<br>337<br>435<br>741   |  | <br><br>  |
| Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>Lithium<br>CONTAMINANTS  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm        | ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)   | 0<br>0<br>50<br>330<br>430<br>760   | 0<br><1<br>54<br>337<br>435<br>741<br><1   | <br><br>   | <br><br><br>  |
| Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>Lithium<br>CONTAMINANTS<br>Silicon   | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm        | ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)   | 0<br>0<br>50<br>330<br>430<br>760<br>Limit/base   | 0<br><1<br>54<br>337<br>435<br>741<br><1<br>current  | <br><br>   | <br><br><br><br><br>history2  |
| Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>Lithium<br>CONTAMINANTS<br>Silicon<br>Sodium   | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm        | ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)  | 0<br>0<br>50<br>330<br>430<br>760<br>Limit/base   | 0<br><1<br>54<br>337<br>435<br>741<br><1<br>current<br>0   | <br><br><br><br>history1<br>                                 | <br><br><br><br>history2  |
| Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>Lithium<br>CONTAMINANTS<br>Silicon<br>Sodium   | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm | ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)   | 0<br>0<br>50<br>330<br>430<br>760<br>limit/base<br>>15  | 0<br><1<br>54<br>337<br>435<br>741<br><1<br>current<br>0<br>0  | <br><br><br><br>history1<br>                                 | <br><br><br><br>history2<br>  |
| Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>Lithium<br>CONTAMINANTS<br>Silicon<br>Sodium<br>Potassium  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm | ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)  | 0<br>0<br>50<br>330<br>430<br>760<br>//////////////////////////////////   | 0<br><1<br>54<br>337<br>435<br>741<br><1<br>current<br>0<br>0<br><1  | <br><br><br><br>history1<br><br>                             | <br><br><br><br>history2<br><br>  |
| Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>Lithium<br>CONTAMINANTS<br>Silicon<br>Sodium<br>Potassium<br>FLUID CLEANLIN<br>Particles >4µm  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm | ASTM D5185(m)<br>ASTM D5185(m)                                     | 0<br>0<br>50<br>330<br>430<br>760<br><b>imit/base</b><br>>15<br>>20<br><b>imit/base</b><br>>5000                                | 0<br><1<br>54<br>337<br>435<br>741<br><1<br>current<br>0<br>0<br><1<br>current<br>1953                         | <br><br><br><br>history1<br><br><br>history1<br>             | <br><br><br><br>history2<br><br><br>history2  |
| Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>Lithium<br>CONTAMINANTS<br>Silicon<br>Sodium<br>Potassium<br>FLUID CLEANLIN<br>Particles >4µm<br>Particles >6µm  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm | ASTM D5185(m)<br>ASTM D7647<br>ASTM D7647                          | 0<br>0<br>50<br>330<br>430<br>760<br><b>imit/base</b><br>>15<br>>20<br><b>imit/base</b><br>>20<br><b>imit/base</b>              | 0<br><1<br>54<br>337<br>435<br>741<br><1<br>current<br>0<br>0<br>0<br><1<br>current<br>1953<br>632             | <br><br><br><br>history1<br><br><br>history1                 | <ul> <li></li> <li></li> <li></li> <li></li> <li>history2</li> <li></li> <li></li> <li>history2</li> <li></li> <li></li> </ul>  |
| Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>Lithium<br>CONTAMINANTS<br>Silicon<br>Sodium<br>Potassium<br>FLUID CLEANLIN<br>Particles >4µm<br>Particles >6µm<br>Particles >14µm                                       | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm | ASTM D5185(m)<br>ASTM D7647<br>ASTM D7647                          | 0<br>0<br>50<br>330<br>430<br>760<br><b>imit/base</b><br>>15<br>>20<br><b>imit/base</b><br>>5000<br>>1300<br>>160               | 0<br><1<br>54<br>337<br>435<br>741<br><1<br><1<br>0<br>0<br>0<br><1<br>0<br><1<br>1953<br>632<br>45            | <br><br><br><br>history1<br><br><br>history1<br><br>history1 | <ul> <li></li> <li></li> <li></li> <li></li> <li>history2</li> <li></li> <li>history2</li> <li></li> <li></li> </ul>  |
| Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>Lithium<br>CONTAMINANTS<br>Silicon<br>Sodium<br>Potassium<br>FLUID CLEANLIN<br>Particles >4µm<br>Particles >14µm<br>Particles >21µm                                      | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm | ASTM D5185(m)<br>ASTM D7647<br>ASTM D7647<br>ASTM D7647<br>ASTM D7647               | 0<br>0<br>50<br>330<br>430<br>760<br><b>imit/base</b><br>>15<br>>20<br><b>imit/base</b><br>>5000<br>>1300<br>>160<br>>40        | 0<br><1<br>54<br>337<br>435<br>741<br><1<br>current<br>0<br>0<br>0<br><1<br>current<br>1953<br>632<br>45<br>10 | <br><br><br><br>history1<br><br><br>history1<br>             | <ul> <li></li> <li></li> <li></li> <li></li> <li></li> <li>history2</li> <li></li> <li>history2</li> <li></li> <li></li></ul> |
| Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>Lithium<br>CONTAMINANTS<br>Silicon<br>Sodium<br>Potassium<br>FLUID CLEANLIN<br>Particles >4µm<br>Particles >6µm<br>Particles >14µm<br>Particles >21µm<br>Particles >38µm | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm | ASTM D5185(m)<br>ASTM D7647<br>ASTM D7647<br>ASTM D7647<br>ASTM D7647<br>ASTM D7647 | 0<br>0<br>50<br>330<br>430<br>760<br><b>imit/base</b><br>>15<br>>20<br><b>imit/base</b><br>>5000<br>>1300<br>>160<br>>40<br>>10 | 0<br><1<br>54<br>337<br>435<br>741<br><1<br>current<br>0<br>0<br><1<br>current<br>1953<br>632<br>45<br>10<br>2 | <br><br><br><br>history1<br><br><br>history1<br><br><br>     | <ul> <li></li> <li></li> <li></li> <li></li> <li>history2</li> <li></li> <li></li> <li>history2</li> <li></li> <li></li></ul> |
| Silicon<br>Sodium<br>Potassium  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm | ASTM D5185(m)<br>ASTM D7647<br>ASTM D7647<br>ASTM D7647<br>ASTM D7647               | 0<br>0<br>50<br>330<br>430<br>760<br><b>imit/base</b><br>>15<br>>20<br><b>imit/base</b><br>>5000<br>>1300<br>>160<br>>40<br>>10 | 0<br><1<br>54<br>337<br>435<br>741<br><1<br>current<br>0<br>0<br>0<br><1<br>current<br>1953<br>632<br>45<br>10 | <br><br><br><br>history1<br><br>history1<br><br>history1<br> | <ul> <li></li> <li></li> <li></li> <li></li> <li>history2</li> <li></li> <li>history2</li> <li></li> <li></li></ul> |



# **OIL ANALYSIS REPORT**

| Particle Trend   | FLUID DEGRAD                               | ATION            | method             | limit/base                 | current        | history1  | history2            |
|--|--|------------------|--------------------|----------------------------|----------------|-----------|---------------------|
| 4µm<br>6µm<br>14µm   | Acid Number (AN)                           | mg KOH/g         | ASTM D974*         | 0.70                       | 0.42           |           |                     |
|  | VISUAL                                     |                  | method             | limit/base                 | current        | history1  | history2            |
|  | White Metal                                | scalar           | Visual*            | NONE                       | NONE           |           |                     |
|  | Yellow Metal                               | scalar           | Visual*            | NONE                       | NONE           |           |                     |
|  | Precipitate                                | scalar           | Visual*            | NONE                       | NONE           |           |                     |
| Mar25/24<br>Mar25/24   | Silt                                       | scalar           | Visual*            | NONE                       | NONE           |           |                     |
| Mari<br>Mari   | Debris                                     | scalar           | Visual*            | NONE                       | NONE           |           |                     |
| Acid Number  | Sand/Dirt                                  | scalar           | Visual*            | NONE                       | VLITE          |           |                     |
| Base   | Appearance<br>Odor                         | scalar           | Visual*<br>Visual* | NORML<br>NORML             | NORML          |           |                     |
|  | Emulsified Water                           | scalar<br>scalar | Visual*            | >0.05                      | NEG            |           |                     |
|  | Free Water                                 | scalar           | Visual*            | 20.00                      | NEG            |           |                     |
|  | FLUID PROPER                               | TIFS             | method             | limit/base                 | current        | history1  | history             |
|  | Visc @ 40°C                                | cSt              | ASTM D7279(m)      | 46.4                       | 45.8           |           |                     |
| - + +  | SAMPLE IMAGE                               |                  | method             | limit/base                 | current        | history1  | history             |
| Mar25/24<br>Mar25/24   |  |                  |                    |                            |                |           | - matory            |
| Viscosity @ 40°C   | Calar                                      |                  |                    |                            |                | no /      |                     |
| · -  | Color                                      |                  |                    |                            |                | no image  | no image            |
| Abnormal   |  |                  |                    |                            |                |           |                     |
| Base   |  |                  |                    |                            |                |           |                     |
|  | Bottom                                     |                  |                    |                            |                | no image  | no image            |
| Abnormal   |  |                  |                    |                            |                |           |                     |
| Automa   | GRAPHS                                     |                  |                    |                            |                |           |                     |
| Mar25/24   | Ferrous Alloys                             |                  |                    |                            | Particle Count |           |                     |
| N ai   | 10 iron 1                                  |                  |                    | 491,520                    |                |           |                     |
| Particle Trend   | 툴. 5 - nickel                              |                  |                    | 122,880                    | Severe         |           |                     |
| 4µm  |  |                  |                    | 30,720                     |                |           |                     |
|  | 0  |                  |                    | 호 ( 7,680                  | Abnormal       |           |                     |
|  | Mar25/24                                   |                  |                    | Mar25/24<br>1.900<br>1000' | ··             |           |                     |
|  | ≥<br>Non-ferrous Meta                      | s                |                    | ≥ <u>sa</u><br>;t± 480.    | 1.             |           |                     |
|  | <sup>10</sup> T                            |                  |                    | jo 120-                    | \`.            |           |                     |
|  | copper<br>lead                             |                  |                    | qum                        |                |           |                     |
| Mar25/24<br>Ma-25-24   | Ē. 5                                       |                  |                    | = 30.                      |                |           |                     |
| M ar   | 0  |                  |                    | 8-                         |                |           |                     |
|  | Mar25/24                                   |                  |                    | Mar25/24                   | -              |           | -                   |
|  |  |                  |                    | W 0.                       | μ 6μ 1         | 4μ 21μ    | 38µ 71              |
|  | Viscosity @ 40°C                           |                  |                    |                            | Acid Number    |           |                     |
|  | Abnormal                                   |                  |                    | ()<br>HOX BW<br>0.60       | Base           |           |                     |
|  | 50<br>Base<br>Base<br>45<br>45<br>Abnormal |                  |                    | E 0.40                     |                |           |                     |
|  | <sup>성</sup> 40 - <mark>Abnormal</mark>    |                  |                    | - mn 0.20-                 |                |           |                     |
|  | 35   |                  |                    |                            |                |           |                     |
|  | Mar25/24                                   |                  |                    | Mar25/24                   | Mar25/24       |           |                     |
|  | M  |                  |                    | W                          | W              |           |                     |
|  | : WearCheck - C8-117                       |                  |                    |                            | 5H9            |           | G-CIVES L           |
| Sample No.   | : WC0716447                                | Recei<br>Teste   |                    | 8 Mar 2024<br>Apr 2024     |                | 42626 GRE | Y ROAD #<br>FOREST, |
|  | . 02023222                                 |                  |                    |                            | na Davia       | WOUNT     | CA NOG 2            |
| ISO 17025:2017 Lab Number  | r : 5750341                                | Diagr            | losed :01          | Apr 2024 - VVe             | 25 Davis       |           |                     |
| ISO 17025:2017 Lab Number<br>Accredited Unique Number<br>Laboratory Test Package | e : IND 2                                  | Diagr            |                    | Apr 2024 - We              | es Davis       |           | enda Flaxn          |
| ISO 17025:2017 Lab Number<br>Accredited Unique Number                            | e : IND 2<br>t, contact Customer Serv      | ice at 1-8       | 00-268-213         | 1.                         |                | bflaxman@ | enda Flaxn          |