

OIL ANALYSIS REPORT

Sample Rating Trend





Hydraulic System Fluid ESSO NUTO H ISO 68 (--- GAL)

DIAGNOSIS

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.

| | | | | Jul2019 | | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| SAMPLE INFORM | ATION | method | limit/base | current | history1 | history2 | |
| Sample Number | | Client Info | | WC0306733 | | | |
| Sample Date | | Client Info | | 25 Jul 2019 | | | |
| Machine Age | hrs | Client Info | | 51723 | | | |
| Oil Age | hrs | Client Info | | 0 | | | |
| Oil Changed | | Client Info | | Not Changd | | | |
| Sample Status | | | | NORMAL | | | |
| CONTAMINATION | | method | limit/base | current | history1 | history2 | |
| Water | | WC Method | >0.05 | NEG | | | |
| WEAR METALS | | method | limit/base | current | history1 | history2 | |
| Iron | ppm | ASTM D5185(m) | >20 | <1 | | | |
| Chromium | ppm | ASTM D5185(m) | >20 | 0 | | | |
| Nickel | ppm | ASTM D5185(m) | >20 | <1 | | | |
| 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 | <1 | | | |
| Copper | ppm | ASTM D5185(m) | >20 | 4 | | | |
| Tin | ppm | ASTM D5185(m) | >20 | 0 | | | |
| Antimony | ppm | ASTM D5185(m) | | 0 | | | |
| Vanadium | ppm | ASTM D5185(m) | | 0 | | | |
| Beryllium | ppm | ASTM D5185(m) | | 0 | | | |
| Cadmium | ppm | ASTM D5185(m) | | <1 | | | |
| ADDITIVES | | method | limit/base | current | history1 | history2 | |
| | | | | | | | |
| Boron | ppm | ASTM D5185(m) | 0 | <1 | | | |
| | ppm ppm | ASTM D5185(m) ASTM D5185(m) | | <1 0 | | | |
| Barium | | | | | | | |
| Barium Molybdenum | ppm | ASTM D5185(m) | 0 | 0 | | | |
| Barium Molybdenum Manganese | ppm ppm | ASTM D5185(m) ASTM D5185(m) | 0 | 0 0 | | | |
| Barium Molybdenum Manganese Magnesium | ppm ppm ppm | ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) | 0 0 | 0 0 <1 | | | |
| Barium Molybdenum Manganese Magnesium Calcium | ppm ppm ppm ppm | ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) | 0 0 5 | 0 0 <1 <1 | | | |
| Barium Molybdenum Manganese Magnesium Calcium Phosphorus | ppm ppm ppm ppm ppm | ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) | 0 0 5 50 | 0 0 <1 <1 37 | | | |
| Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc | ppm ppm ppm ppm ppm ppm | ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) | 0 0 5 50 330 | 0 0 <1 <1 37 342 | | | |
| Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur | ppm ppm ppm ppm ppm ppm ppm | ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) | 0 0 5 50 330 420 | 0 0 <1 <1 37 342 364 | | | |
| Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur | ppm ppm ppm ppm ppm ppm ppm | ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) | 0 0 5 50 330 420 | 0 0 <1 <1 37 342 364 2608 | | | |
| Barium Molybdenum Manganese Magnesium Calcium Chosphorus Zinc Sulfur Lithium CONTAMINANTS | ppm ppm ppm ppm ppm ppm ppm | ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) | 0 0 5 50 330 420 3100 | 0 0 <1 <1 37 342 364 2608 0 | | | |
| Barium Molybdenum Manganese Magnesium Calcium Chosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon | ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) | 0 0 5 50 330 420 3100 | 0 0 <1 <1 37 342 364 2608 0 current | history1 | history2 | |
| Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium | ppm | ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) | 0 0 5 50 330 420 3100 | 0 0 <1 <1 37 342 364 2608 0 <u>current</u> <1 | history1 | history2 | |
| Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium | ppm | ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) | 0 0 5 50 330 420 3100 imit/base >15 | 0 0 <1 <1 37 342 364 2608 0 current <1 <1 | history1 | history2 | |
| Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium | ppm | ASTM D5185(m) ASTM D5185(m) | 0 0 5 50 330 420 3100 limit/base >15 >20 | 0 0 <1 <1 37 342 364 2608 0 <u>current</u> <1 <1 <1 0 | history1 | history2 | |
| Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLINE | ppm | ASTM D5185(m) ASTM D5185(m) | 0 0 5 50 330 420 3100 imit/base >15 >20 imit/base >5000 | 0 0 <1 <1 37 342 364 2608 0 current <1 <1 <1 0 current | history1 history1 | history2 history2 | |
| Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLINE Particles >4µm | ppm | ASTM D5185(m) ASTM D5185(m) | 0 0 5 50 330 420 3100 imit/base >15 >20 imit/base >5000 | 0 0 <1 <1 37 342 364 2608 0 current <1 <1 <1 0 current 2743 | history1 history1 history1 | history2 history2 | |
| Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLINE Particles >4µm Particles >6µm | ppm | ASTM D5185(m) ASTM D5185(m) | 0 0 5 50 330 420 3100 3100 binit/base >15 >20 binit/base >20 binit/base >1300 >1300 >160 | 0 0 <1 <1 37 342 364 2608 0 <u>current</u> <1 <1 <1 0 <u>current</u> 2743 333 | history1 history1 | history2 history2 history2 | |
| Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Potassium FLUID CLEANLINE Particles >4µm Particles >14µm | ppm | ASTM D5185(m) ASTM D7647 ASTM D7647 | 0 0 5 50 330 420 3100 3100 binit/base >15 >20 binit/base >20 binit/base >1300 >1300 >160 | 0 0 <1 <1 37 342 364 2608 0 <u>current</u> <1 <1 <1 0 <u>current</u> 2743 333 9 | history1 history1 history1 | history2 history2 | |
| Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLINE Particles >4µm Particles >14µm Particles >21µm | ppm | ASTM D5185(m) ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647 | 0 0 5 50 330 420 3100 3100 >1 5 20 5 20 5 20 5 5000 >1300 >160 >160 >40 >10 | 0 0 <1 <1 37 342 364 2608 0 <u>current</u> <1 <1 <1 0 <u>current</u> 2743 333 9 2 | history1 history1 history1 | history2 history2 | |
| Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Patticles >4µm Particles >6µm Particles >14µm Particles >21µm Particles >38µm | ppm | ASTM D5185(m) ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647 | 0 0 5 50 330 420 3100 3100 >1 5 20 5 20 5 20 5 5000 >1300 >160 >160 >40 >10 | 0 0 <1 <1 37 342 364 2608 0 <u>current</u> <1 <1 <1 0 <u>current</u> 2743 333 9 2 0 | history1 history1 history1 | history2 <p< td=""></p<> | |
| Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLINE Particles >4µm Particles >6µm Particles >21µm Particles >38µm Particles >71µm | ppm | ASTM D5185(m) ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647 | 0 0 5 5 5 330 420 3100 3100 3100 3100 3100 315 5 5000 21300 2160 240 310 310 2160 23 | 0 0 <1 <1 37 342 364 2608 0 <u>current</u> <1 <1 <1 0 <u>current</u> 2743 333 9 2 2 0 0 0 19/16/10 | history1 history1 history1 | i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i <p< td=""></p<> | |



OIL ANALYSIS REPORT

| 6k - | Particle Trend | FLUID DEGRADA | ATION | method | | | | history2 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|-------------------------|----------------------------------------------------------------------------------------------------------|------------------------------------------------------|---------------------|------------------|--------------------------------------------------------------------------|
| 5k • | 4μm | Acid Number (AN) | mg KOH/g | ASTM D974* | .40 | 0.190 | | |
| - 1) salitical and selected and | 14μm | VISUAL | | method | limit/base | current | history1 | history2 |
| 5 | | White Metal | scalar | Visual* | NONE | NONE | | |
| ag 2k - gunu 1k - | | Yellow Metal | scalar | Visual* | NONE | NONE | | |
| Ok | | Precipitate | scalar | Visual* | NONE | NONE | | |
| | 6 // 52 inr | Silt | | Visual* | NONE | NONE | | |
| - | | Debris Sand/Dirt | scalar scalar | Visual* Visual* | NONE | VLITE NONE | | |
| 0.50 T | Acid Number | Appearance | scalar | Visual* | NORML | NORML | | |
| | Base | Odor | scalar | Visual* | NORML | NORML | | |
| (B/HO) B 0 30 | | Emulsified Water | scalar | Visual* | >0.05 | NEG | | |
| 0.30 Jagunger Munder | | Free Water | scalar | Visual* | | NEG | | |
| Acid Nun Acid Nun Acid Nun | | FLUID PROPERT | IES | method | limit/base | current | history1 | history2 |
| 0.00 | | Visc @ 40°C | cSt | ASTM D7279(m) | 68.8 | 67.7 | | |
| 101.00 | 91/25/Ju 61/25/Ju | SAMPLE IMAGES | 5 | method | limit/base | current | history1 | history2 |
| 1 ⁰⁸ | Viscosity @ 40°C | Color | | | | | no image | no image |
| (), 70 | Base | Bottom | | | | | no image | no image |
| 55 | | GRAPHS | | | | | | |
| 1011 | 6 | Ferrous Alloys | | | 491,520 | Particle Count | | т26 |
| | | iron | | | 122,880 | | | -24 |
| 6k T | Particle Trend | E. 5 | | | 30,720 | Severe | | -22 |
| ≘ ^{5k} • | μοποπηα 4 μm Gum | 0 | | | 7.000 | Abnormal | | |
| 1 l) 4k - | 14μm | Jul25/19 | | | (per 1 m]) 1025/19 | | | 18 06 |
| 10 | | | _ | | Jul25/19 1026/19 1026/19 1026/19 | | | 1999 |
| Jag 2k - | | Non-ferrous Metal | S | | 40 | | • | -20 130 4406:1999 Claanliness -16 6406:1999 Claanliness -16 14 114 |
| Ok | | copper lead | | | una 120 | | | |
| 01.40 | 0 LL/22/13 | ā. 5 - | | | 30 | ļ \ | 1 | -12 🤤 |
| - | | | | | | † | | +10 |
| | | Jul25/1 | | | Jul25/19 | - | | -8 |
| | | Viscosity @ 40°C | | | , 0 4 | ہوں۔ Acid Number | 14µ 21µ | 38μ 71μ |
| | | 80 75 Abnormal | | | 0.60 (D) | | | |
| | | ()-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0 | | | e ^o 0.40 | Base | | |
| | | 表 65 60 Abnomal | | | 4 0.20 | | | |
| | | 55 | | | | | | |
| | | Jul25/19 | | | Jul25/19 - | Jul25/19 | | Jul25/19 |
| | Laboratory Sample No. Lab Number Accredited Laboratory Test Package To discuss this sample report Test denoted (*) outside scop | : WearCheck - C8-117 : WC0306733 : 02300142 : 4903415 : IND 2 t, contact Customer Serv | Recei Teste Diagr | ved : 31 d : 01 iosed : 01 ::00-268-213 :: | gton, ON L7L Jul 2019 Aug 2019 Aug 2019 - W | es Davis | PETERB Contac | |

Contact/Location: Nelson Ross - PET412PET