|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | **Condition Monitoring Rotating**  **Equipment** | | | | | | | | | | | | | | | **Date: /12/2021** | |
| **WO#** | |
| Check by: Rodin / Herman | | **Thickener Hydraulic Power Pack CM. Check Sheet** | | | | | | | | | | | | | | | **Visual [ X ]**  **Vibration [ X ]** | |
| Review by: | | **Equipment Tag #: 31 - TM -** | | | | | | | | | | | | | | |
| **Safety** | | | | | | | | | | | | | | | | | | |
| Equipment Tags: | | | | | | | Housekeeping - Cleaning: | | | | | | | | | | | |
| Hand rail-Grating: | | | | | | | Terminal box- Grounding cables: | | | | | | | | | | | |
| **Comments:** | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | |
| **General Rake Operating Condition** | | | | | | | | | | | | | | | | | | |
| Drive hydraulic supply oil pressure (MPa) | | |  | | | | | Rake lift pressure at constant elevation *(Lift pressure=9-10MPa)* | | | | | | | | | |  |
| Rake torque pressure(MPa) | | |  | | | | |
| **Reservoir** | | | | | | | | | | | | | | | | | | |
| Check hydraulic oil reservoir for oil leaks. | | | | | | OK | | |  | Not OK | | |  | PRV 1 (°C) | | | | |
| Check hydraulic oil reservoir for condensate built up. | | | | | | OK | | |  | Not OK | | |  | PRV 2 (°C) | | | | |
| Check hydraulic oil for contamination. (*dirty/milky*) | | | | | | OK | | |  | Not OK | | |  | PRV 3 (°C) | | | | |
| Check instrument and fittings on panel for oil leaks. | | | | | | OK | | |  | Not OK | | |  | Delta pressure across filter*(< 300kPa)* | | | | |
| Check reservoir breather condition. | | | | | | OK | | |  | Not OK | | |  |
| Check color indicator on filter. | **Green ok** | | |  | **Yellow dirty** | | | | | |  | **Red bypass** | | |  |  | | |
| **Comments:** | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Hydraulic Drive Unit** | | | | | |
| General condition & Noise | OK |  | Not OK |  | NDE (°C) |
| Hold down bolts and Foundation base plate | OK |  | Not OK |  | NDE (°C) |
| Cooling system and Lube fitting integrity | OK |  | Not OK |  | Motor body (°C) |
| **Hydraulic oil supply Pump** | | | | | |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| General condition & Noise | Ok |  | Not ok |  | Pump temperature (°C) |
| Pedestal hold down bolts and Foundation base plate | Ok |  | Not ok |  |  |
| Pump casing & Suction/ discharge line fittings | Ok |  | Not ok |  |  |
| Check Flexible hose supply lines for chafe and cracks. | Ok |  | Not ok |  |  |
| **Comments:** | | | | | |
|  | | | | | |
|  | | | | | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Motor M2 (Rake lift supply oil Pump Motor M2)** | | | | | | | | |
| General condition & Noise | | OK | |  | Not OK | |  | NDE (°C) |
| Hold down bolts and Foundation base plate | | OK | |  | Not OK | |  | NDE (°C) |
| Cooling system and Lube fitting integrity | | OK | |  | Not OK | |  | Motor body (°C) |
| **Comments:** | | | | | | | | |
|  | | | | | | | | |
|  | | | | | | | | |
|  | | | | | | | | |
|  | | | | | | | | |
| **Rotary Hydraulic Drive Motor and Gearbox (*drive on right side*)** | | | | | | | | |
| Listen for any unusual sound coming from motor. | OK | |  | Not ok | |  | Hydraulic motor (50-55°C): | |
| Check motor adaptor base loose hold down bolts. | OK | |  | Not ok | |  |
| Check for excess pulsation of the casing drain hose | OK | |  | Not ok | |  | Check for case drain temperature to determine extent of leakage.  (*High temperature=greater leakage*): | |
| Check motor casing for seal leaks. | OK | |  | Not ok | |  |
| Check hydraulic supply line fittings for leaks. | OK | |  | Not ok | |  |
| Check all flexible hose lines for chafe and cracks. | OK | |  | Not ok | |  |
| Check and ensure hose have sufficient length. | OK | |  | Not ok | |  |
| ***Planetary Gear Reducer (Primary)*** | | | | | | | | |
| General condition & Noise | Ok | |  | Not ok | |  | Gearbox max. temperature (*Max. temperature 30-35°C*): | |
| Hold down bolts and Foundation base plate | Ok | |  | Not ok | |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Cooling system | Ok |  | Not ok |  |  |
| Gearbox input/output shaft- casing oil seal leaks | Ok |  | Not ok |  |  |
| Gearbox lube condition and oil level | Ok |  | Not ok |  |  |
| ***Planetary Gearbox (secondary stage) D1.*** | | | | | |
| General condition & Noise |  |  |  |  | Gearbox max. temperature (*Max. temperature 30-35°C*): |
| Hold down bolts and Foundation base plate |  |  |  |  |
| Cooling system |  |  |  |  |  |
| Gearbox input/output shaft- casing oil seal leaks |  |  |  |  |  |
| Gearbox lube condition and oil level |  |  |  |  |  |
| **Comments:** | | | | | |
|  | | | | | |
|  | | | | | |
|  | | | | | |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Rotary Hydraulic Drive Motor and Gearbox (*drive on left side*)** | | | | | |
| Listen for any unusual sound coming from motor. | OK |  | Not ok |  |  |
| Check motor adaptor base loose hold down bolts. | OK |  | Not ok |  |  |
| Check for excess pulsation of the casing drain hose | OK |  | Not ok |  |  |
| Check motor casing for seal leaks. | OK |  | Not ok |  |  |
| Check hydraulic supply line fittings for leaks. | OK |  | Not ok |  |  |
| Check all flexible hose lines for chafe and cracks. | OK |  | Not ok |  |  |
| Check and ensure hose have sufficient length. | OK |  | Not ok |  |  |
| ***Planetary Gear Reducer (Primary)*** | | | | | |
| General condition & Noise | Ok |  | Not ok |  | Gearbox max. temperature (*Max. temperature 30-35°C*): |
| Hold down bolts and Foundation base plate | Ok |  | Not ok |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Cooling system | Ok |  | Not ok |  |  |
| Gearbox input/output shaft- casing oil seal leaks | Ok |  | Not ok |  |  |
| Gearbox lube condition and oil level | Ok |  | Not ok |  |  |
| ***Planetary Gearbox (secondary stage) D1.*** | | | | | |
| General condition & Noise |  |  |  |  | Gearbox max. temperature (*Max. temperature 30-35°C*): |
| Hold down bolts and Foundation base plate |  |  |  |  |
| Cooling system |  |  |  |  |  |
| Gearbox input/output shaft- casing oil seal leaks |  |  |  |  |  |
| Gearbox lube condition and oil level |  |  |  |  |  |
| **Comments:** | | | | | |
|  | | | | | |

|  |
| --- |
| **Rotary Hydraulic Drive Motor and Gearbox (*Close to limit switch*)** |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Listen for any unusual sound coming from motor. | OK |  | Not ok |  |  |
| Check motor adaptor base loose hold down bolts. | OK |  | Not ok |  |  |
| Check for excess pulsation of the casing drain hose | OK |  | Not ok |  |  |
| Check motor casing for seal leaks. | OK |  | Not ok |  |  |
| Check hydraulic supply line fittings for leaks. | OK |  | Not ok |  |  |
| Check all flexible hose lines for chafe and cracks. | OK |  | Not ok |  |  |
| Check and ensure hose have sufficient length. | OK |  | Not ok |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ***Planetary Gear Reducer (Primary)*** | | | | | |
| General condition & Noise | Ok |  | Not ok |  | Gearbox max. temperature (*Max. temperature 30-35°C*): |
| Hold down bolts and Foundation base plate | Ok |  | Not ok |  |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Cooling system | | Ok | |  | | Not ok | | | | |  | | |  | | | | |
| Gearbox input/output shaft- casing oil seal leaks | | Ok | |  | | Not ok | | | | |  | | |  | | | | |
| Gearbox lube condition and oil level | | Ok | |  | | Not ok | | | | |  | | |  | | | | |
| ***Planetary Gearbox (secondary stage) D1.*** | | | | | | | | | | | | | | | | | | |
| General condition & Noise |  | |  | |  | | | | |  | | | | Gearbox max. temperature (*Max. temperature 30-35°C*): | | | | |
| Hold down bolts and Foundation base plate |  | |  | |  | | | | |  | | | |
| Cooling system |  | |  | |  | | | | |  | | | |  | | | | |
| Gearbox input/output shaft- casing oil seal leaks |  | |  | |  | | | | |  | | | |  | | | | |
| Gearbox lube condition and oil level |  | |  | |  | | | | |  | | | |  | | | | |
| **Comments:** | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | |
| **Rake Lift mechanism** | | | | | | | | | | | | | | | | | | |
| Visually inspect rams for loose flange hold down bolts | | | | | | | Ok | |  | | | Not ok | | |  | |  | |
| Visually inspect rams mounting flange cracks. | | | | | | | Ok | |  | | | Not ok | | |  | |  | |
| Visually inspect rams for scratch and corrosion. | | | | | | | Ok | |  | | | Not ok | | |  | |  | |
| Check hydraulic cylinder for leakage around rams. | | | | | | | Ok | |  | | | Not ok | | |  | |  | |
| Check lubrication on sliding track of lift device. | | | | | | | Ok | |  | | | Not ok | | |  | |  | |
| Check sliding track guides for excessive uneven wear. | | | | | | | Ok | |  | | | Not ok | | |  | |  | |
| Check connection fitting for leaks to lifting cylinder. | | | | | | | Ok | |  | | | Not ok | | |  | |  | |
| Check flexible hose and piping for chafing and cracks. | | | | | | | Ok | |  | | | Not ok | | |  | |  | |
| Check limit switch for looseness. | | | | | | | Ok | |  | | | Not ok | | |  | |  | |
| Inspect operating of rake*.(Striker plate should either between or at the position of the limit switch-the closer the rake to the upper limit switch the poorer the operating condition of the rake)* | | | | | | | Ok | |  | | | Not ok | | |  | |  | |
| **Comments:** | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | |
| **Automatic Grease Lubrication Unit.** | | | | | | | | | | | | | | | | | | |
| Check for air leaks on lube control system. | | | | | | | | Ok | | |  | | Not ok | | |  | | All three pinion temperature(°C) |
| Check the integrity of all grease supply piping and flexible hose. | | | | | | | | Ok | | |  | | Not ok | | |  | |
| Check the operation of grease block. | | | | | | | | Ok | | |  | | Not ok | | |  | |
| Check all hose and grease nozzle fastener for looseness. | | | | | | | | Ok | | |  | | Not ok | | |  | |
| Check and ensure that grease is spreading on bull gear. | | | | | | | | Ok | | |  | | Not ok | | |  | |  |
| **Comments:** | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | |