
RIG EQUIPMENT
INSPECTION

Verify and record the crosshead slide clearances (National pumps: top clearance between 0.015 inch/0.38 mm and 0.025 inch/0.63 mm).

Examine the oil analysis frequency and records.

Ensure that the pressure relief valves exhaust lines slope downwards at least 2 degrees or ½ inch per foot (API RP 54 section 9.13.7).

Confirm the condition of the suction strainer.
Verify that the pony rods are NDT-inspected in between wells.
Are the discharge manifold studs inspected (NDT/stretch) as per 10% cycle every year?
Check the condition of the manifold high-pressure valves.
Confirm the wall thickness inspection records for high-pressure lines (minimum 87.5% of the original wall thickness left).

The Surveyor or Rig Mechanic needs to get inside the pump to perform measurements and visual inspections. Electrical isolation is critical.

The main shaft and pinion shaft have roller bearings whose clearances regularly need to be measured and the values should be recorded in the history files.

Visual inspection of the bronze cage of the excentric bearings, looking for cracks and loose or missing pins. This inspection requires that the mud pump be rotated several times to check all the bearings from both sides.

FIGURE 12

Very dirty oil inside the crankcase. Notice the bull gear-driven lubricating-oil pump, which limits the slow oil pump speed. This pump cannot be pre-lubricated, so the Driller should start the pumps slowly to prevent damage due to lubricatingoil starvation on the bearings and crossheads. Modern practice is to fit external motor-driven pumps (complete with alarm systems) that start when the mud pump is selected.