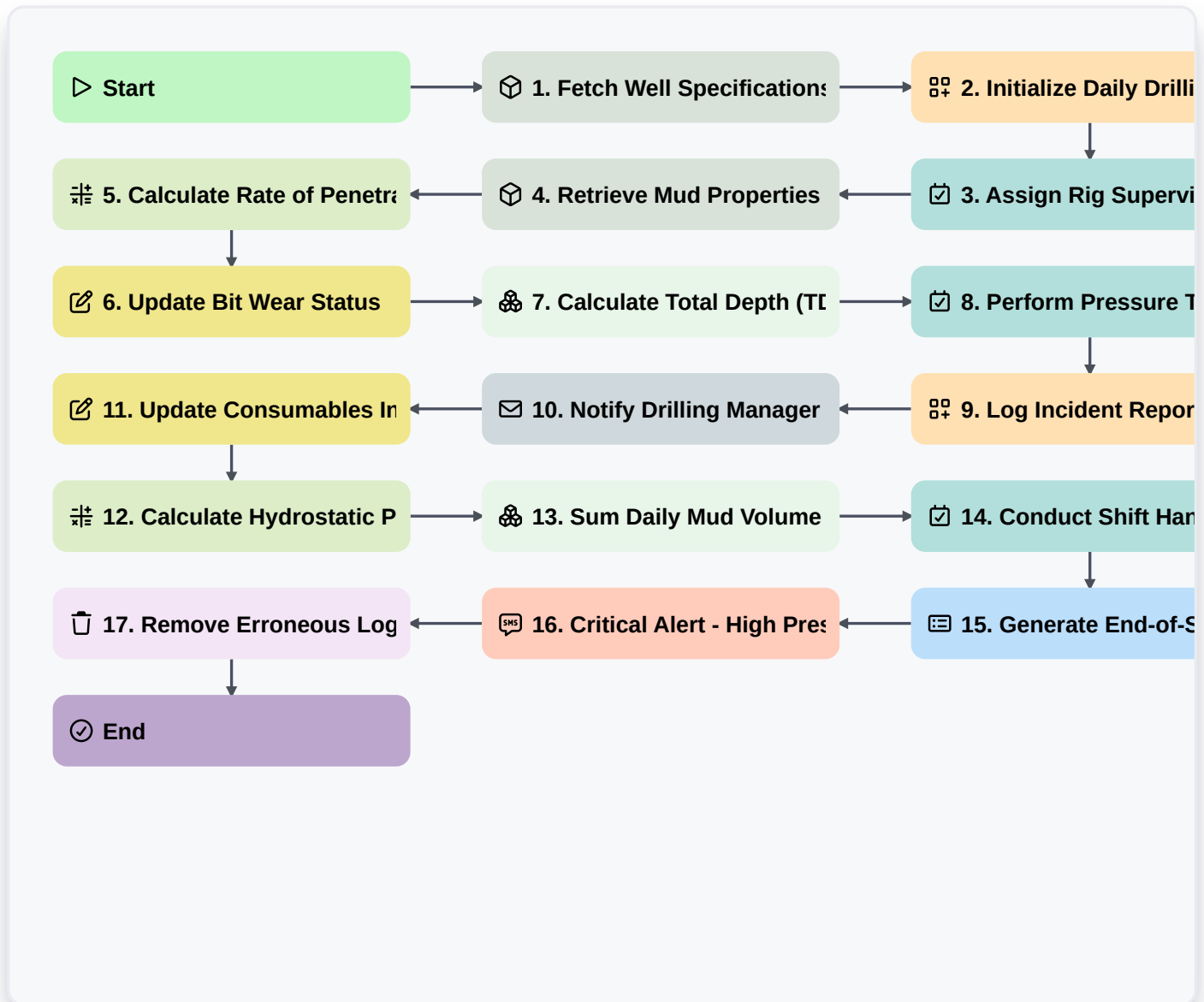


Petroleum Drilling Operations Workflow



▷ Start

Start of the Workflow/Process.

📦 1. Fetch Well Specifications

Retrieve technical parameters (depth, diameter, casing type) from the Wells Data Model.

📄 2. Initialize Daily Drilling Report (DDR)

Create a new data entry in the Drilling Logs model to track the 24-hour period.

📝 3. Assign Rig Supervisor

Create a task for the designated Rig Supervisor to review the daily safety checklist.

📦 4. Retrieve Mud Properties

Get current viscosity, density, and pH levels from the Fluids Data Model.

📈 5. Calculate Rate of Penetration (ROP)

Calculate the drilling speed by comparing current depth against the previous depth entry.

📝 6. Update Bit Wear Status

Update the drill bit usage log with current hours drilled and visible wear level.



7. Calculate Total Depth (TD) Progress

Aggregate all depth entries to find the current maximum depth reached.

8. Perform Pressure Test

Create a task for the Mud Engineer to execute and record a casing integrity pressure test.

9. Log Incident Report

Create an entry in the HSE (Health, Safety, Environment) model if any anomalies are detected.

10. Notify Drilling Manager

Send an automated email summary of the daily drilling progress to the Drilling Manager.

11. Update Consumables Inventory

Update the inventory count for drilling fluids and chemicals based on daily usage.

12. Calculate Hydrostatic Pressure

Execute formula: (Mud Density * True Vertical Depth) to ensure wellbore stability.

13. Sum Daily Mud Volume Loss

Aggregate all fluid loss entries to determine total volume lost to the formation.

14. Conduct Shift Handover

Create a task for the outgoing and incoming Toolpusher to complete the handover checklist.

15. Generate End-of-Section Report

Generate a comprehensive PDF report summarizing the performance of the completed drilling section.

16. Critical Alert - High Pressure

Send an emergency SMS alert to the On-Call Engineer if downhole pressure exceeds safety thresholds.

17. Remove Erroneous Log Entry

Delete an incorrectly recorded depth entry from the daily log if a mistake is identified.

End

End of the Workflow/Process.