



# Drilling Project Initiation Outline

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## Planning Phase

1. Client provides geological information and project-specific information, including:
  - Surface location: Coordinates and geographical details.
  - Bottom-hole location: Target depth and sub-surface coordinates.
  - Regulatory boundaries including hard lines: Compliance with state and federal regulations.
  - Logging/Coring program (if applicable): Define intervals and data acquisition goals.
  - Mud logging program: Real-time data acquisition for lithology and gas.
  - Specify any additional concerns or targets that must be addressed: Geohazards, subsurface conditions, production goals.
2. Initial Technical Planning (IPT Coordination)

IPT initiates cross-functional meetings with the client's geology, completions, and production teams to:

  - Review of geological data and discuss targets and subsurface hazards
    - Assess risks like faulting, wellbore instability, lost circulation
  - Define completion strategy:
    - Estimated treatment pressures: Account for formation breakdown and pump schedule.
    - Treatment types (e.g., acid stimulation, hydraulic fracturing)
    - Tubing specs (material grade, size, connection type): Optimize for production efficiency and longevity.
  - Long-term artificial lift plan ensuring compatibility with planned well path and completion.
3. Drilling Design Process – led by IPT:
  - Offset well review: IPT meets the client for data transfer and goals (Permits, Plat, Geological Data/Targets, Offset Reports, etc.).

- Development of Basis of Design tailored to project goals, including:
  - Offset well review: Analyzing historical data and best practices from nearby wells to minimize risks.
  - Risk analysis: Evaluating potential drilling hazards, including pressure abnormalities, lost circulation zones, and wellbore instability.
  - Development of Gap Document to ensure compliance and deliverables are met.
  - BHA and bit analysis: Tool configuration to maximize ROP and reduce vibration.
  - Directional plans: Optimizing well path considering geological challenges, surface constraints, and planned artificial lift.
  - Casing and cement design: Calculating safety factors for casing strings and cement integrity based off potential wellbore loads.
  - Wellhead configuration: Ensuring compatibility with drilling, completion, and production requirements over the life of the well.
  - AFE development: Comprehensive breakdown of estimated costs by line item, services, equipment, and material.
- Weekly project status meetings: ensures alignment and transparency.
- Design review meeting: validate well design and risk mitigations strategies.
- RFQ process: Solicit and compare vendor quotes based on cost, performance, and past experience.
- Vendor selection and contracting: Finalize vendors and execute MSAs if required.

4. Develop the Drilling Program: Draft the full operational plan, including:

- Drilling Fluids Program: Designing mud systems to maintain wellbore stability and manage formation pressures.
- Cementing Program: Include slurry properties, placement techniques, and job execution strategies.
- BHA/Bit Program: Drill bit selection for each hole section based on formation hardness and abrasiveness.

- Emergency Response Plan: Clear protocols for well control, H2S events, and equipment failure.
- Wellhead and Operational Checklists: Pre-mobilization inspections, rig acceptance tests, and contingency plans.
- Event Response Planning: Scenarios for possible events while drilling: Well control, losses, stuck pipe, tight hole, etc.
- Drill the Well on Paper (DWOP) meeting: IPT, client, and vendor meeting to discuss operational sequences, KPIs, safety protocols, and coordination among teams.

## **Execution Phase**

### **1. Rig Mobilization and Pre-Spud Meeting:**

- Onsite meeting to discuss the drilling plan, safety measures, and equipment mobilization.
- Safety briefings covering HSE protocols, muster points, and emergency contacts.

### **2. Daily Operations and Monitoring – onsite and remote engineering support:**

- Daily field support to the rig.
- Daily morning operations calls.
- Daily performance tracking: Recording drilling rates, mud properties, and safety metrics.
- Activity monitoring: Real-time data analysis to detect inefficiencies or issues.
- Continuous monitoring of mud properties, casing tallies, and cement volumes.
- Management of Change (MOC) as needed, with detailed documentation and stakeholder communication.
- Invoice coding verification to ensure accurate cost tracking and control.

## **Post-Well Work**

- Develop End of Well Report

- Review drilling performance against preset goals, focusing on efficiency, safety, and cost-effectiveness.
- Safety performance evaluation: Analyzing incidents, near-misses, and compliance with safety standards.
- Time and cost accounting: Comprehensive breakdown by phase and vendor, including any deviations from the plan.
- Vendor performance reviews: Summarizing KPIs, contractual obligations, and areas for improvement.
- Lessons learned: Integrating feedback into planning for future wells, updating procedural documents as needed.
- Final well schematics and drilling data
- Final invoice verification and project closeout.