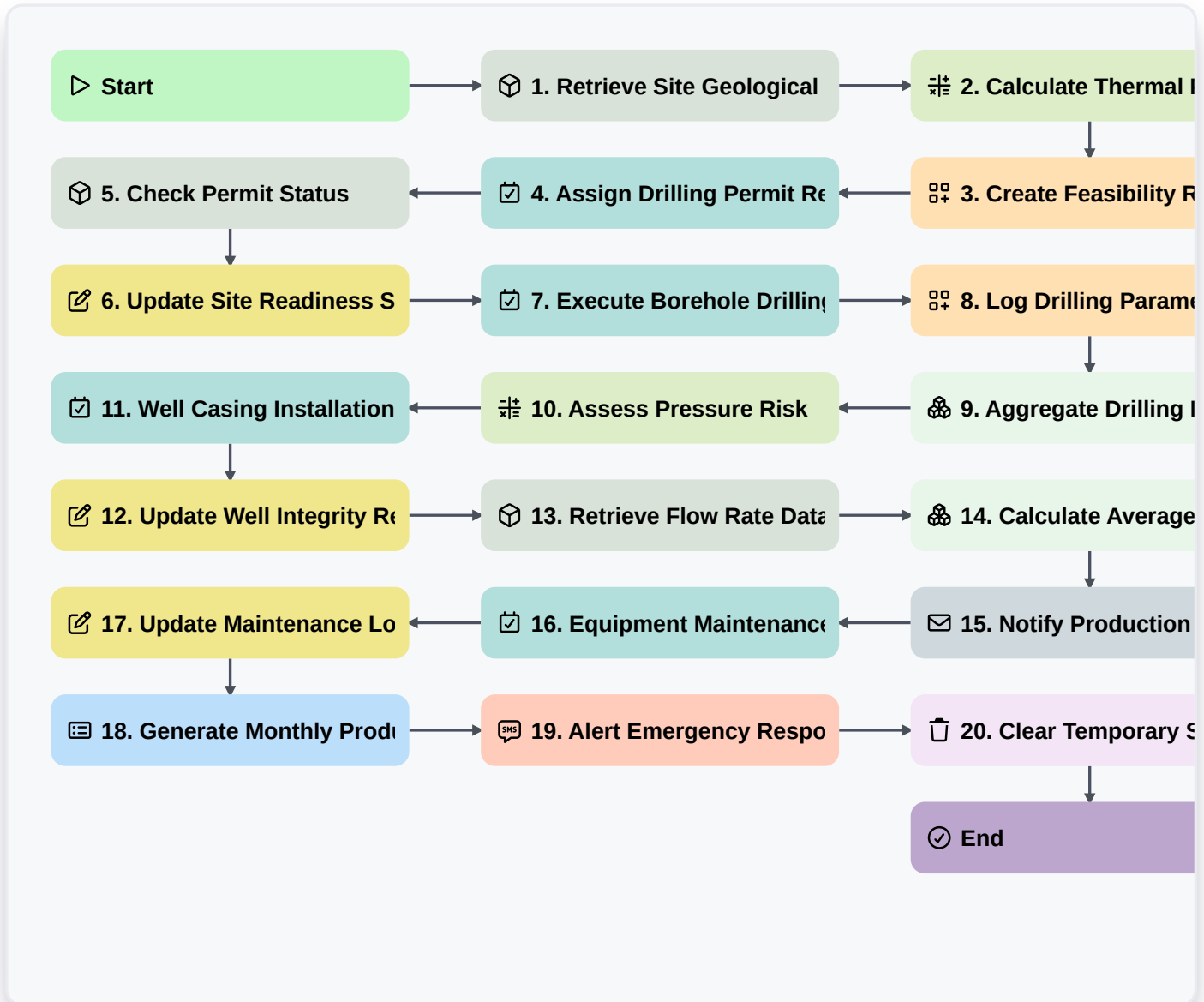


Geothermal Energy Extraction Process



Start

Start of the Workflow/Process.

1. Retrieve Site Geological Data

Fetch existing geological survey data and temperature readings from the Site Analysis data model.

2. Calculate Thermal Potential

Calculate the estimated energy output using retrieved temperature and pressure data.

3. Create Feasibility Report Entry

Create a new record in the Feasibility Studies data model with the calculated thermal potential.

4. Assign Drilling Permit Review

Create a task for the Legal Department to review environmental and drilling permits.

5. Check Permit Status

Retrieve the status of regulatory permits from the Regulatory Compliance data model.

6. Update Site Readiness Status

Update the Site Readiness data model to 'Ready for Drilling' once permits are confirmed.



7. Execute Borehole Drilling

Create a task for the Engineering Team to initiate the drilling operations.

8. Log Drilling Parameters

Create new entries in the Drilling Log data model for depth, pressure, and temperature encountered.

9. Aggregate Drilling Pressure Data

Calculate the maximum pressure encountered during the drilling phase from the Drilling Log entries.

10. Assess Pressure Risk

Compare the maximum pressure against safety thresholds to determine if reinforcement is needed.

11. Well Casing Installation

Create a task for the Field Technicians to install well casing based on the pressure assessment.

12. Update Well Integrity Record

Update the Well Infrastructure data model with the installation timestamp and casing specifications.

13. Retrieve Flow Rate Data

Fetch fluid flow rate data from the Production Monitoring data model.

14. Calculate Average Flow Rate

Calculate the average flow rate over the last 24 hours to ensure steady-state production.

15. Notify Production Manager

Send an email notification to the Production Manager regarding the daily flow rate stability.

16. Equipment Maintenance Check

Create a periodic maintenance task for the heat exchanger and turbine components.

17. Update Maintenance Log

Update the Maintenance Schedule data model to reflect the completion of the check.

18. Generate Monthly Production Report

Create a comprehensive performance report summarizing energy output, flow rates, and downtime.

19. Alert Emergency Response

Send an SMS alert to the Emergency Response Team if pressure thresholds exceed safety limits.

20. Clear Temporary Sensor Logs

Delete temporary, high-frequency sensor data entries once they have been aggregated into long-term storage.

End

End of the Workflow/Process.