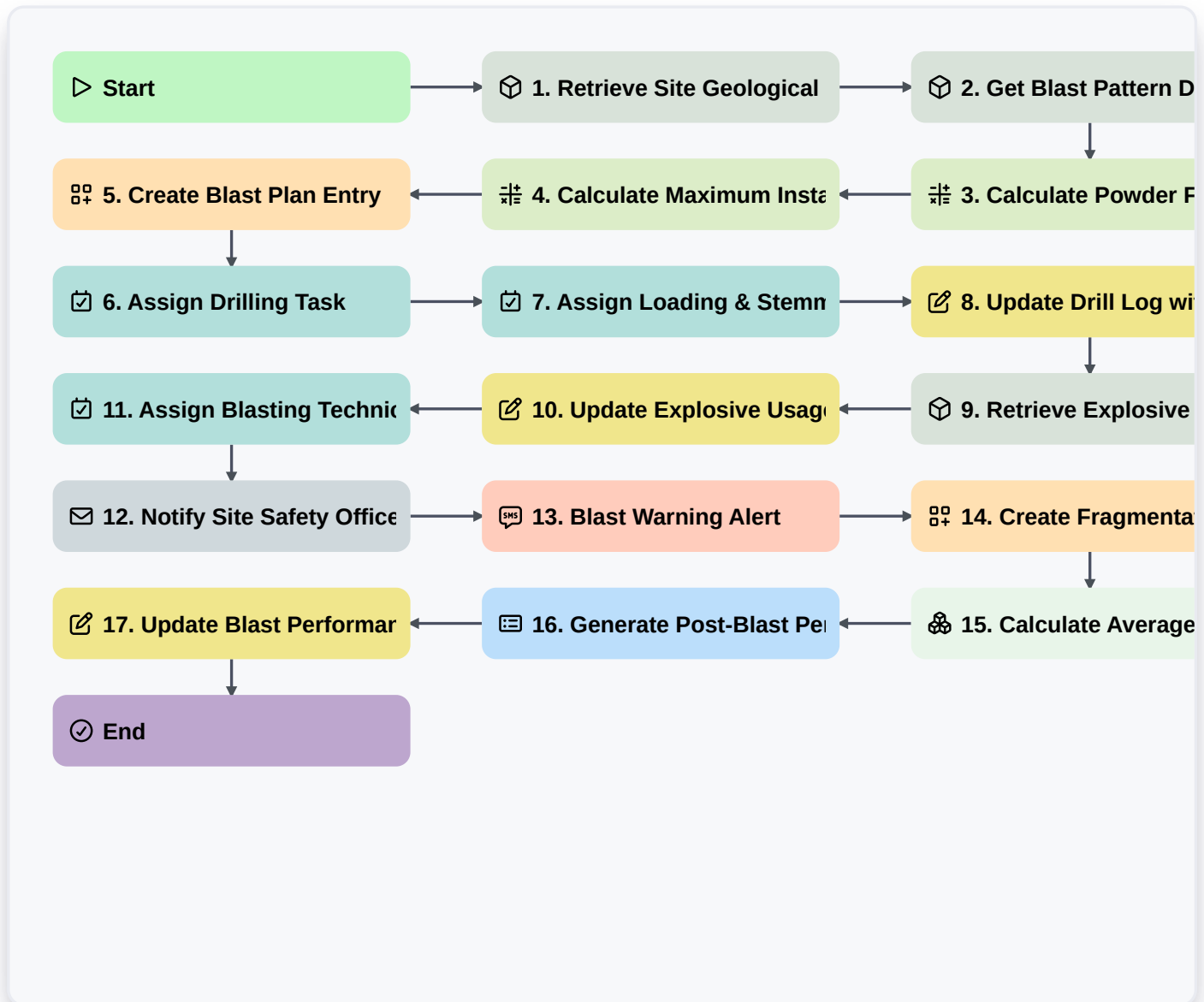


Blasting Operations & Fragmentation Control



Start

Start of the Workflow/Process.

1. Retrieve Site Geological Data

Fetch existing borehole and rock density data from the Geological Data Model to determine fragmentation requirements.

2. Get Blast Pattern Design

Retrieve the predefined drilling pattern and burden/spacing parameters from the Blast Design entry.

3. Calculate Powder Factor

Calculate the ratio of explosive mass to the volume of rock to be fragmented (kg/m^3).

4. Calculate Maximum Instantaneous Charge (MIC)

Calculate the allowed charge weight per delay to comply with vibration safety limits.

5. Create Blast Plan Entry

Generate a new Blast Plan record containing the calculated parameters, pattern geometry, and explosive types.

6. Assign Drilling Task

Create a task for the Drilling Supervisor to execute the pattern according to the retrieved design.



7. Assign Loading & Stemming Task

Create a task for the Blasting Crew to perform hole charging and stemming.

8. Update Drill Log with Actuals

Update the Blast Plan entry with actual drilling depths and any deviations encountered during drilling.

9. Retrieve Explosive Inventory

Check available emulsion or ANFO stock levels in the Inventory Data Model.

10. Update Explosive Usage

Subtract the quantity of explosives used from the Inventory Data Model.

11. Assign Blasting Technician

Assign the final detonation and firing task to the certified Blaster-in-Charge.

12. Notify Site Safety Officer

Send an email notification to the Safety Officer regarding the scheduled blast time and exclusion zone setup.

13. Blast Warning Alert

Send an SMS alert to all site personnel in the vicinity to clear the blast area.

14. Create Fragmentation Analysis Entry

Create a new entry to record post-blast fragmentation results (e.g., % of oversize, mean fragment size).

15. Calculate Average Fragmentation Size

Aggregate all recent fragmentation analysis entries to find the average particle size trend.

16. Generate Post-Blast Performance Report

Generate a comprehensive report comparing the planned powder factor vs. actual fragmentation results.

17. Update Blast Performance Score

Update the master Blast Log with a quality score based on the fragmentation analysis.

End

End of the Workflow/Process.