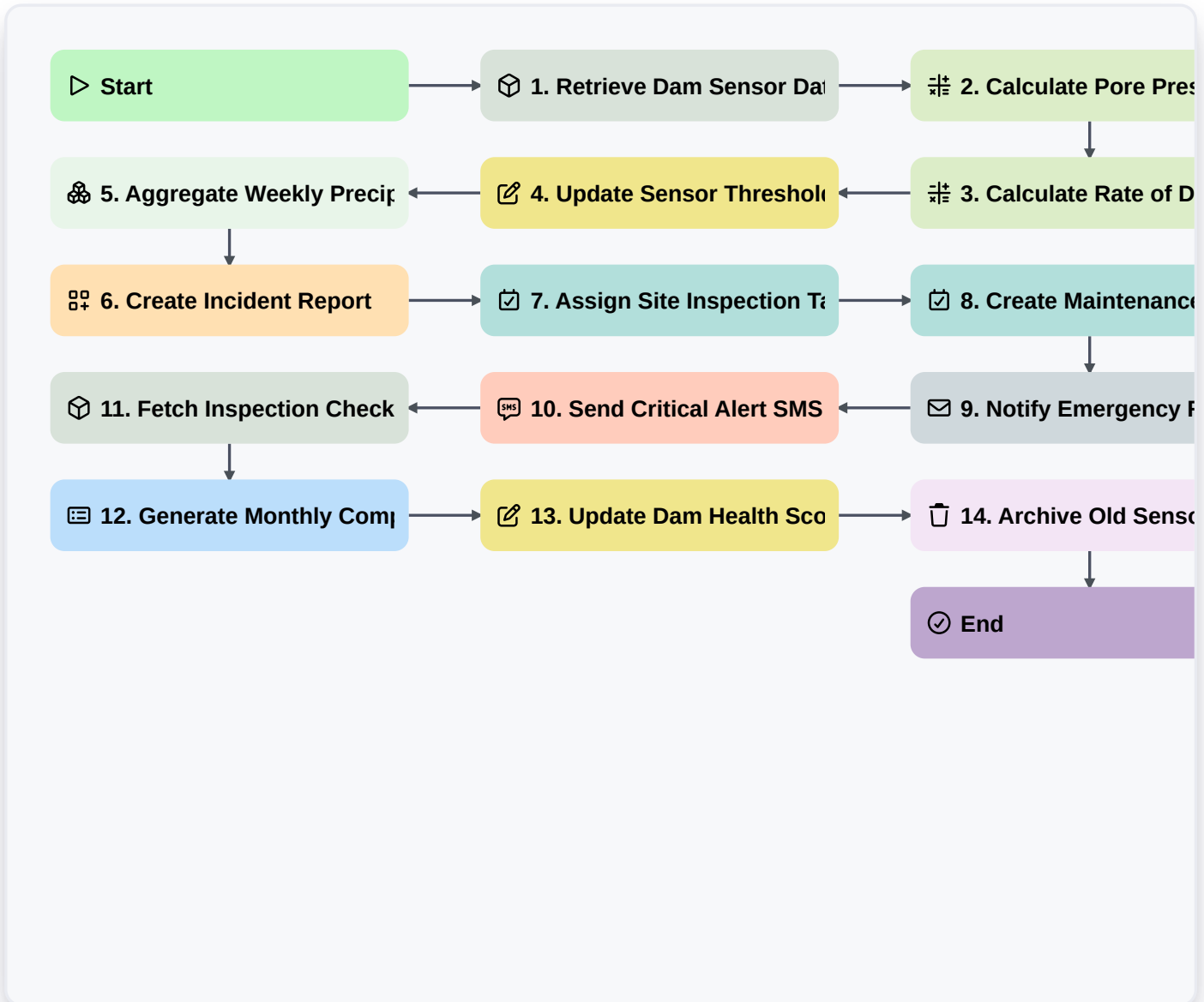


# Tailings Dam Management & Monitoring



## Start

Start of the Workflow/Process.

## 1. Retrieve Dam Sensor Data

Fetch the latest readings from piezometers, inclinometers, and settlement markers from the Monitoring Data Model.

## 2. Calculate Pore Pressure Ratio

Calculate the ratio of pore water pressure to total overburden pressure to check for stability thresholds.

## 3. Calculate Rate of Displacement

Determine the velocity of movement by comparing the current displacement reading against the previous reading.

## 4. Update Sensor Threshold Status

Update the 'Status' field in the Sensor Data Model to 'Alert' or 'Critical' if thresholds are breached.

## 5. Aggregate Weekly Precipitation

Sum all rainfall entries from the last 7 days to calculate cumulative rainfall loading on the dam crest.

## 6. Create Incident Report

Automatically generate a new entry in the Incident Log Data Model when a threshold breach is detected.



✔ **7. Assign Site Inspection Task**

Create a task for the Geotechnical Engineer to perform a physical visual inspection of the containment area.

✔ **8. Create Maintenance Work Order**

Generate a task for the maintenance team to inspect the spillway and drainage systems.

✉ **9. Notify Emergency Response Team**

Send an urgent email alert to the Emergency Response Team (ERT) and Site Manager containing the breach details.

📱 **10. Send Critical Alert SMS**

Send an SMS notification to the Safety Officer for immediate attention to high-risk movement readings.

📁 **11. Fetch Inspection Checklists**

Retrieve the predefined safety checklist template associated with the current dam section.

📄 **12. Generate Monthly Compliance Report**

Compile all sensor data, inspection results, and incident logs into a formal Monthly Monitoring Report.

✍ **13. Update Dam Health Score**

Update the overall 'Health Index' in the Asset Registry based on the aggregated monitoring results.

🗑 **14. Archive Old Sensor Logs**

Remove or move expired/redundant raw sensor readings from the active monitoring model to historical storage.

✔ **End**

End of the Workflow/Process.