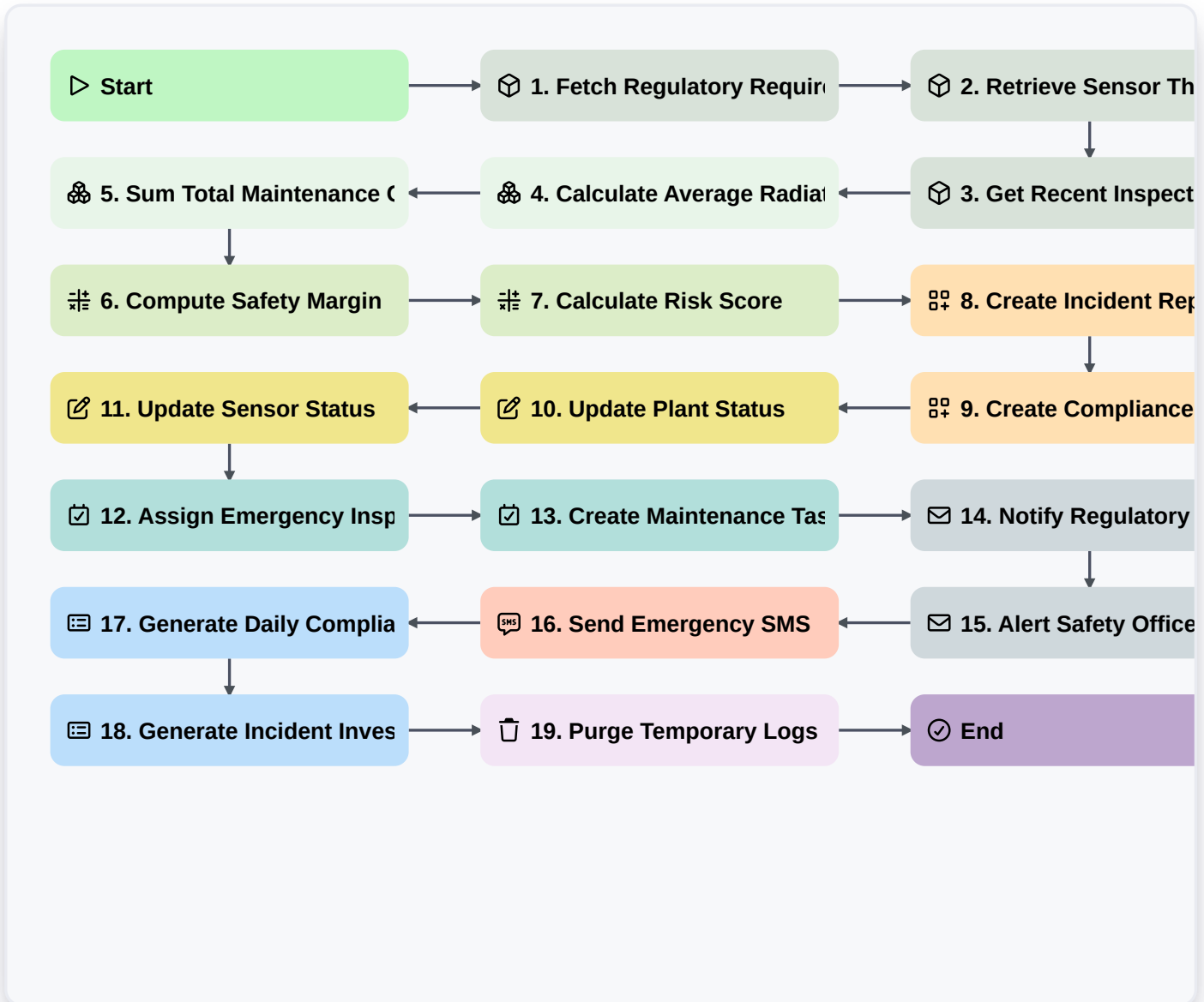


Nuclear Power Plant Safety Compliance Process



▷ Start

Start of the Workflow/Process.

📦 1. Fetch Regulatory Requirements

Retrieve all active safety regulations and compliance standards from the Regulatory Data Model.

📦 2. Retrieve Sensor Thresholds

Get maximum allowable radiation and temperature thresholds from the Safety Parameters Data Model.

📦 3. Get Recent Inspection Logs

Retrieve the last 10 completed inspection entries to identify recurring patterns.

🔗 4. Calculate Average Radiation Levels

Calculate the average radiation level from all sensor entries recorded in the last 24 hours.

🔗 5. Sum Total Maintenance Costs

Aggregate the total cost of all maintenance entries for the current fiscal quarter.

🔗 6. Compute Safety Margin

Calculate the difference between the current sensor reading and the maximum threshold (Threshold - Current_Reading).



7. Calculate Risk Score

Execute a formula combining radiation levels, temperature, and pressure to determine a numeric Risk Index.

8. Create Incident Report

Generate a new entry in the Incident Management Data Model when a threshold violation is detected.

9. Create Compliance Audit Log

Create a permanent record in the Audit Trail Data Model documenting the process execution.

10. Update Plant Status

Update the global 'Plant Status' entry in the Facility Data Model to 'Alert' or 'Emergency' if thresholds are exceeded.

11. Update Sensor Status

Change the status of a specific sensor entry to 'Under Investigation' within the Sensor Data Model.

12. Assign Emergency Inspection Task

Create a high-priority task for the On-Call Safety Engineer to perform a manual physical inspection.

13. Create Maintenance Task

Create a task for the Maintenance Team to repair hardware identified in the inspection log.

14. Notify Regulatory Authorities

Send an automated email to the Nuclear Regulatory Commission (NRC) contact regarding the safety breach.

15. Alert Safety Officers

Send an urgent email alert to all registered Safety Officers and Plant Managers.

16. Send Emergency SMS

Send an SMS alert to the Emergency Response Team (ERT) for immediate mobilization.

17. Generate Daily Compliance Summary

Generate a comprehensive PDF report summarizing all sensor readings, alerts, and tasks completed in the last 24 hours.

18. Generate Incident Investigation Report

Create a detailed investigation report aggregating all data points related to a specific incident ID.

19. Purge Temporary Logs

Delete transient, non-critical sensor cache entries from the temporary data model to free up system resources.

End

End of the Workflow/Process.