
Machine Downtime Communication Protocol

1.0 Program Objective & Scope

The Machine Downtime Communication Protocol establishes a standardized process for documenting, communicating, and escalating all unplanned machine stoppages across the facility. The primary objective is to reduce total downtime by ensuring that every event is captured in real time, assigned a root cause category, and communicated to the appropriate stakeholders within defined timeframes. This protocol applies to all production machinery, packaging lines, and critical support equipment (e.g., compressors, chillers) in the manufacturing plant. It covers both short-duration stops (under 5 minutes) and extended breakdowns, with escalation triggers based on duration and impact to production schedule.

2.0 Key Performance Indicators (KPIs) & Metrics

The following KPIs are tracked to measure the effectiveness of the communication protocol:

- Downtime

Event Capture Rate: $(\text{Number of events logged} / \text{Estimated total events}) \times 100$.

Target: $\geq 95\%$.

- Mean Time to Communicate (MTTC): Average time from machine stop to first notification sent to maintenance.

Target: ≤ 5 minutes.

- Mean Time to Escalate (MTTE): Average time from stop to escalation to plant leadership for events exceeding 30 minutes.

Target: ≤ 35 minutes.

- Downtime

Code Accuracy: Percentage of events with correct root cause category assigned within 24 hours.

Target: $\geq 90\%$.

- Repeat

Downtime Events: Number of events with same root cause code within 30 days.

Target: ≤ 2 per machine.

- Lost

Production Minutes: Total minutes of unplanned downtime per shift, tracked by machine and shift.

3.0 Roles & Responsibilities

Maintenance

Manager: Owns the protocol, ensures all maintenance personnel are trained, reviews weekly downtime reports, and leads root cause analysis for top 5 repeat events each month.

Machine Operators: Responsible for immediately logging any machine stop in the CMMS (ServiceGrid) using the 'Downtime Event' form, selecting the observed symptom (e.g., jam, fault code, noise), and notifying the shift maintenance technician via radio or intercom within 2 minutes of the stop. Plant Leadership (Plant Manager, Shift Supervisors): Monitor real-time downtime dashboard, initiate escalation calls for events exceeding 30 minutes, and approve any overtime or parts procurement needed for critical repairs.

Reliability Engineer: Analyzes downtime data monthly to identify trends, updates the root cause code list, and recommends process or equipment changes.

4.0 Program Execution & Data Collection

Execution follows a strict 5-step process:

1.

Event Detection: Operator identifies machine stop and presses the 'Downtime Start' button on the machine HMI or opens the ServiceGrid mobile app.

2.

Initial Logging: Operator selects the machine, enters the observed symptom from a dropdown list (e.g., 'Conveyor jam', 'Motor fault', 'Material shortage'), and submits. Timestamp is automatically recorded.

3.

Notification: ServiceGrid sends an automated alert to the assigned maintenance technician's mobile device and displays the event on the plant floor dashboard.

4. Response & Resolution: Technician acknowledges the alert, arrives at the machine within 10 minutes, diagnoses the issue, and logs the repair actions and parts used in ServiceGrid. When the machine restarts, the operator or technician clicks 'Downtime End' to record duration.

5.

Escalation: If downtime exceeds 30 minutes, ServiceGrid automatically escalates to the Shift Supervisor and Maintenance Manager via SMS and email. At 60 minutes, the Plant Manager is notified. Data is collected in real time via ServiceGrid's mobile forms and HMI integrations. All events are timestamped and tagged with machine ID, shift, operator ID, and root cause code (selected by technician after repair).

5.0 Review, Reporting & Continuous Improvement

Data is reviewed at three levels:

- Daily: Shift supervisors review the previous day's downtime log during the morning stand-up meeting, focusing on events >15 minutes and any missed escalations.

- Weekly: Maintenance Manager generates a 'Downtime Pareto' report from ServiceGrid, identifying the top 3 machines and top 5 root causes. This is shared with the plant leadership team.

- Monthly: Reliability Engineer conducts a deep dive on repeat events, performs root cause analysis (5 Whys, Fishbone), and presents findings with recommended corrective actions (e.g., PM frequency changes, part upgrades, operator retraining). CapEx requests for machine modifications or replacements are justified using the total lost production minutes and associated cost (calculated as lost minutes × standard cost per minute). The protocol itself is reviewed semi-annually and updated based on feedback from operators and maintenance teams to improve code accuracy and reduce notification lag.

Regulatory Disclaimer: This program document is a generic strategic template. The end-user assumes all liability for aligning these metrics, KPIs, and reliability frameworks with specific corporate goals and OEM engineering standards.