Procedure EC-101: Emergency Cooling Protocol

Purpose

This procedure defines the steps required to quickly reduce temperature in PLCs when readings exceed 82°F (27.8°C) to prevent equipment damage and maintain production integrity.

Scope

Applies to all manufacturing floor PLCs monitored by the Digital Twin Dashboard.

Prerequisites

- Access to Digital Twin Dashboard
- Authorization level B2 or higher
- Knowledge of machine cooling system locations

Equipment/Tools Required

- Tablet or workstation with dashboard access
- Thermal imaging camera (optional)
- PLC cooling override key (if manual intervention required)

Procedure Steps

1. **Verify Temperature Alert**
    - Confirm the high temperature reading is not a sensor error
    - Note which specific PLC(s) are affected
2. **Activate Auxiliary Cooling**
    - Navigate to "System Controls" > "Climate Management" > "Emergency Cooling"
    - Select affected PLC zone(s)
    - Toggle "Auxiliary Cooling" to "ON"
    - Set cooling intensity to "High"
3. **Adjust Airflow Parameters**
    - Increase directed airflow to affected area by 50%
    - Verify cooling vents are unobstructed
    - Ensure nearby heat-generating processes are at safe distance
4. **Reduce PLC Processing Load**
    - Navigate to "Resource Management" > "PLC Controls"
    - Enable "Heat Management Mode" for affected PLC(s)
    - Confirm load reduction to 80% capacity maximum
5. **Monitor Temperature Response**

    - Observe temperature trend for minimum of 5 minutes
    - Document initial temperature and rate of decrease
    - Set dashboard alert for temperature stabilization
6. **Document Intervention**
    - Record incident in Anomaly Tracking System (ATS)
    - Note time, initial temperature, and response measures
    - Flag for follow-up maintenance inspection

Completion Criteria

Temperature decreases and stabilizes below 80°F (26.7°C) for at least 10 consecutive minutes.

Follow-Up Actions

- Schedule preventive maintenance check within 24 hours
- Review historical temperature data for patterns
- Update risk assessment if this is a recurring issue

Related Procedures

- PL-203: Production Line Slowdown
- SD-305: Sensor Diagnostic Test
- PM-115: Preventive Maintenance for Cooling Systems