

R-OPS-007 EMERGENCY SHUTDOWN PROCEDURES FOR ARCTIC OPERATION

PDR-OPS-007 EMERGENCY SHUTDOWN PR

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1. PURPOSE AND SCOPE

1 This document establishes mandatory emergency shutdown proced

2 These procedures apply to all BlueCore(TM)-enabled AMRs operating in the following environments:

- a) Cold storage facilities
- b) Industrial freezer environments
- c) Temperature-controlled logistics centers
- d) Pharmaceutical cold chain facilities

2. DEFINITIONS

1 "Emergency Shutdown" means the immediate cessation of all AMR operations.

2 "BlueCore(TM) System" refers to PDR's proprietary cold-environment control system.

3 "Critical Failure" means any malfunction that compromises safe operation of the AMR.

4 "Safety Perimeter" defines the minimum 3-meter radius that must be maintained around the AMR at all times.

3. EMERGENCY SHUTDOWN TRIGGERS

1 Automated Shutdown Initiation

The BlueCore(TM) System shall automatically initiate emergency shutdown procedures under the following conditions:

- a) Internal temperature exceeding operational parameters (-40 C to +
- b) Detection of unauthorized personnel within safety perimeter
- c) Navigation system failure or position uncertainty exceeding 50cm
- d) Power system anomalies affecting safe operation
- e) Communication loss exceeding 30 seconds
- f) Mechanical resistance exceeding 2.5x nominal torque

2 Manual Shutdown Requirements

Facility operators must initiate emergency shutdown when:

- a) Observing irregular AMR behavior
- b) During facility evacuation events
- c) Upon detection of environmental hazards
- d) When directed by safety personnel
- e) During scheduled maintenance intervals

4. SHUTDOWN PROCEDURE SEQUENCE

1 Primary Shutdown Protocol

Upon activation of emergency shutdown:

- a) AMR immediately ceases all movement
- b) Engages electromagnetic braking system

- c) Deactivates all non-essential systems
- d) Maintains minimal power to safety systems
- e) Broadcasts emergency status via wireless network
- f) Activates visual indicators (strobe beacon)

2 Secondary Systems Check

Within 30 seconds of shutdown initiation:

- a) BlueCore(TM) diagnostic scan
- b) Position verification
- c) Safety system status confirmation
- d) Environmental condition assessment
- e) Data logging activation

5. POST-SHUTDOWN REQUIREMENTS

1 Mandatory Safety Checks

Before restart authorization:

- a) Physical inspection by certified technician
- b) System diagnostic review
- c) Environmental condition verification
- d) Safety system validation
- e) Communication system confirmation

2 Documentation Requirements

The following must be recorded:

- a) Shutdown trigger identification

- b) Environmental conditions at time of shutdown
- c) System status logs
- d) Inspection results
- e) Corrective actions taken

6. RESTART AUTHORIZATION

1 Restart authority is limited to Level 2 certified PDR technicians or above

2 Restart Prerequisites:

- a) Completion of all safety checks
- b) Documentation of shutdown cause
- c) Implementation of corrective measures
- d) Management approval

e) Facility safety clearance

7. COMPLIANCE AND LIABILITY

1 Failure to follow these procedures voids all warranties and may result in legal action.

2 PDR assumes no liability for damages resulting from unauthorized use of this document.

3 These procedures are protected under PDR intellectual property rights.

8. DOCUMENT CONTROL

1 This document must be reviewed annually and updated as required.

2 Distribution limited to authorized personnel with valid safety certification.

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APPROVAL AND EXECUTION

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