

Qatar Company for  
Airports Operation  
and Management  
**MATAR**

الشركة القطرية  
لإدارة وتشغيل  
المطارات  
**مطار**



## MAINTENANCE PROCEDURE

# **STACKER CRANE AISLE MONTHLY PREVENTIVE MAINTENANCE PROCEDURE**

	Prepared by:	Checked by:	Approved by:
Name	Jose Dino Constantino	Norbert Mueller	Nenad Jovkovic
Designation	Senior Technician	Deputy Maintenance Manager	Maintenance Manager
Signature			
Date Signed	07/07/2024	10/07/2024	18/07/2024



Title:

**STACKER CRANE AISLE MONTHLY  
PREVENTIVE MAINTENANCE  
PROCEDURE**

Page No.

Page **2 of 16**

Document No.

LSME-CRG-SOP-034

Revision No.

01

**Document History Record**

Revision No.	Reason for Change	Implementation Date	Prepared by
00	First Issue	06-Aug-2023	Jose Dino Constantino
01	To incorporate the latest best practices to improve overall efficiency and safety in our operations	07-July-2024	Jose Dino Constantino

**Reviewed by**

Name	Designation	Signature	Date Signed
Jerry Carandang	Sr. Maint. Techn.		07/07/24
Francis Agbor E	Safety Officer		10/07/24
Gabriel James	Sr. OHSED		10-07-2024
Ronnie V. Gutierrez	Sr. Technician		10-07-2024
Fernando Diaz	Sr. Trainer		10-07-2024
Mabini Pauley	Maint. Technician		10-07-2024

**Reference Documents**

Document Number	Document Title
25045-C1110-11-UZI-B-V02-B07	Maintenance Manual Consignment Stack Crane (OEM)
LSME-CRG-M-002	Stacker Crane Equipment Manual
LSME-CRG-SOP-028	Equipment Request and Handover Procedure
LSME-OHS-SOP-021	Lock Out Tag Out Procedure



Title:

**STACKER CRANE AISLE MONTHLY  
PREVENTIVE MAINTENANCE  
PROCEDURE**

Page No.	Page 3 of 16
Document No.	LSME-CRG-SOP-034
Revision No.	01

**Table of Contents:**

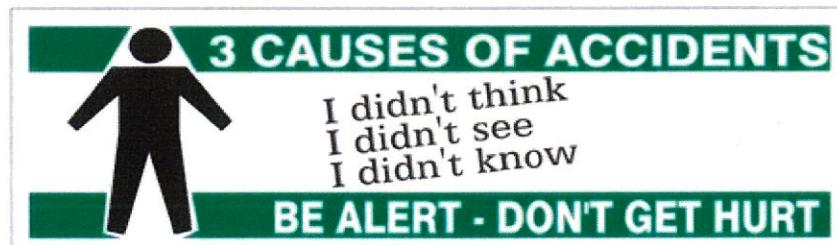
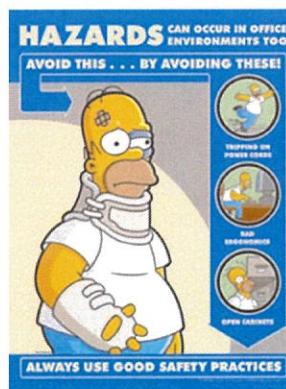
<b>1 Safety Precautions and Labels .....</b>	<b>4</b>
1.1 General Safety Precautions .....	4
1.2 Warning Signs .....	5
1.3 PPE (Personal Protective Equipment) .....	5
<b>2 Procedure Objective(s).....</b>	<b>6</b>
<b>3 Scope and Applicability of the Procedure.....</b>	<b>6</b>
<b>4 Roles and Responsibilities .....</b>	<b>6</b>
<b>5 Tools and Materials .....</b>	<b>7</b>
5.1 Tools .....	7
5.2 Materials .....	7
<b>6 Stacker Crane Aisle .....</b>	<b>7</b>
<b>7 Procedure .....</b>	<b>8</b>
<b>8 Risk Assessment .....</b>	<b>11</b>
<b>9 Contact Numbers:.....</b>	<b>16</b>

## 1 Safety Precautions and Labels

The Company's primary objective is to ensure the safety and health of the employees and to protect company property. The goal is to provide safe and healthy working conditions and environment for all employees. Each employee must know and follow general and departmental safety rules. Safety Officers and Supervisors/Shift leaders must enforce safe work practices through strict adherence to safety rules. Most accidents can be prevented if everyone uses assigned safety equipment & PPE and follows the established safety rules.

### 1.1 General Safety Precautions

- Always adhere to the work procedures approved by management.
- Never take shortcuts. Follow the safe system of work always.
- **DO NOT BYPASS ANY SAFETY DEVICES/PROTOCOL.**
- Discuss risks and hazards associated with the maintenance activities and explain each corresponding control measure to all operatives.
- Used proper LOCKOUT/TAGOUT on electrical panels. The LOTO procedure must strictly be adhered to.
- Never operate a piece of machinery until you have been trained on it and fully understand the safety procedures, including what to do in an emergency.
- Always wear appropriate personal protective equipment (PPE).
- If we are using a safety harness, make sure that it is still in good condition and must be hooked at the proper hooking point.
- Before climbing ladders, check for stability. Maintain a 3-point contact (two hands and a foot, or two feet and a hand) when climbing/ descending a ladder. Ensure all ladder safety protocols are respected.
- Clean and organize your workspace. Maintain good housekeeping.
- Always be attentive and vigilant to your work surroundings.
- When in doubt, contact your supervisor or manager for instruction, guidance, or training.
- Report all unsafe behavior, acts, conditions, and incidences immediately to a supervisor or safety team.
- Keep things in perspective. Hazards may be limitless, so focus on the most likely risks first.
- Educate everyone in the workplace about the safety requirements and consider posting a list of workplace safety tips. Workplace safety training will help them reduce or eliminate injuries and illnesses from occurring in the workplace.
- Always use the appropriate tool for the appropriate task.



## 1.2 Warning Signs

Hazard symbols or warning symbols are recognizable symbols designed to warn about hazardous materials, locations, or objects, including electric currents, poisons, and radioactivity.

Name of Hazard Symbol	Image	Name of Hazard Symbol	Image
	Warning! Automatic start-up		Warning! Stay clear of moving parts
	Warning! Risk of crushing limbs		Unauthorized personnel are not allowed
	Caution! Risk of Head Injury		Warning! Flammable Material
	Caution! Fall Hazard		Warning! Poisonous
	Caution! Trip hazard		Warning! High Voltage

## 1.3 PPE (Personal Protective Equipment)

Personal protective equipment (PPE) refers to protective clothing, helmets, goggles, or other garments or equipment designed to protect the wearer's body from injury or infection. The purpose of personal protective equipment is to reduce employees' exposure to hazards when engineering and administrative controls are not feasible or effective to reduce these risks to acceptable levels. PPE is needed when there are hazards present.





Title:

**STACKER CRANE AISLE MONTHLY  
PREVENTIVE MAINTENANCE  
PROCEDURE**

Page No.

Page **6 of 16**

Document No.

LSME-CRG-SOP-034

Revision No.

01

## 2 Procedure Objective(s)

This procedure aims to establish and implement a standard procedure so that maintenance personnel can perform the task safely, efficiently, and effectively and allow the operation to be back in service as quickly as possible after the maintenance to minimize downtime and customer inconvenience.

This procedure also identifies maintenance staff roles and responsibilities during the maintenance. While doing so, it also ensures the safety of all maintenance staff and equipment.

## 3 Scope and Applicability of the Procedure

This document is applicable only in STACKER CRANE AISLE where monthly preventive maintenance is involved and carried out by LODGE SYSTEMS MIDDLE EAST within HIA Facilities.

This document shall be reviewed biennially. However, the procedure may be updated earlier if recommended by the LSME Management or an audit team.

## 4 Roles and Responsibilities

The procedure defined in this document applies to the following staff and organisations:

Staff Position / Responsible Area	Organisation
LSME Management <ul style="list-style-type: none"><li>• Responsible for hiring competent persons to perform the task.</li><li>• Provide the required resources to execute the task which includes but is not limited to a safe work environment, system of work, and monitoring.</li><li>• Responsible for the implementation of the procedure.</li></ul>	Lodge Systems Middle East
Shift Leaders / Supervisors <ul style="list-style-type: none"><li>• Ensure that all equipment that is under their control is maintained in a safe condition.</li><li>• Responsible for ensuring that their members of staff are competent in their roles. This will include ensuring that they have enough training, information, and supervision to carry out their role safely</li></ul>	Lodge Systems Middle East
Senior Maintenance Technician and Lead Technician <ul style="list-style-type: none"><li>• Ensure that all staff takes all safety precautions before starting, during, and after the maintenance activity.</li><li>• Constant supervision and monitoring of activity.</li><li>• Ensure that the activity is carried out as per this procedure and that the equipment is safely returned to the operations within the specified time frame</li></ul>	Lodge Systems Middle East
Maintenance Technicians <ul style="list-style-type: none"><li>• Adhere to and follow the procedure</li></ul>	Lodge Systems Middle East
Safety Officer <ul style="list-style-type: none"><li>• Effective enforcement of all safety protocols and safe systems of work.</li></ul>	Lodge Systems Middle East

## 5 Tools and Materials

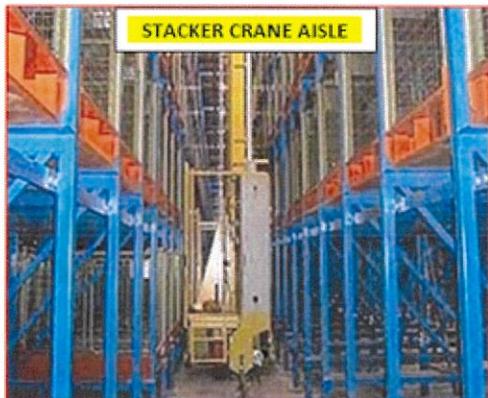
### 5.1 Tools

S/N	Tools	Quantity	Unit (if relevant)
1	Fluke Multi Meter	1	pc
2	Vacuum Cleaner	3	pcs
3	Lock out – Tag out	2	pcs

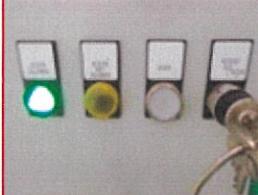
### 5.2 Materials

S/N	Materials	Quantity	Unit (if relevant)
1	Cotton Rags	1	kg
2	Liquid soap	300	ml
3	Broom	3	pcs
4	Dustpan	3	pcs
5	Garbage bag	3	pcs

## 6 Stacker Crane Aisle



## 7 Procedure

INSTRUCTIONS	ILLUSTRATIONS
<p><b>Step 1: Preparation:</b></p> <ul style="list-style-type: none"> <li>a. The Team Leader must conduct a Toolbox Talk (TBT) to briefly explain the task's scope and each team member's responsibilities. All safety precautions and hazards must be clearly communicated.</li> <li>b. The Team Leader must ensure that the Permit to Work (PTW) is valid and that a work order is generated. The Team Leader must always bring the PTW and work order to the site.</li> <li>c. The Team Leader must ensure that all team members are using the required PPE.</li> <li>d. Prepare all necessary tools and materials before the PM task.</li> <li>e. Bring all necessary tools and materials to the stacker crane area.</li> <li>f. If the task involves multiple teams, the Supervisor/Senior Technician must designate a Lead Technician (Communicator) to carry out all communications with the control room.</li> <li>g. Each Team Leader must coordinate and communicate in which location they will access (i.e., northside) including their designated work area within the aisle during the activity.</li> </ul>	
<p><b>Step 2: Requesting the equipment:</b></p> <ul style="list-style-type: none"> <li>a. Team Leaders must call and inform the communicator once their team reaches the designated area. After the confirmation, the communicator must call the control room (IP no. 10006 or 10014) and ask permission to access the equipment.</li> <li>b. Once it is approved and the equipment is in "Out of Service" mode, perform the Aisle Access procedure by turning the key switch of the CP panel to "Access Req." (Access Request) and wait for the "Access Allowed" light to illuminate. In this condition, the aisle is ready for access.</li> <li>c. Remove the key from the control panel and insert it into the access key box. Turn the key and tap your access card to the access card reader. The light indicator of the card reader is blinking initially, and once you hear the ticking sound and the light indicator stabilizes it means that the door is ready to be opened. Note: If the access card reader is not working, use the other key attached to the key ring to open the aisle access door.</li> <li>d. Open the aisle access door and remove the key from the access key box. <b>The Communicator must keep the key during the duration of aisle maintenance.</b></li> <li>e. Communicator must inform the other team who are accessing the other side of the aisle that they can enter the aisle. <b>The team leader must follow the Aisle Access procedure and keep the key during the duration of aisle maintenance.</b></li> </ul>	     

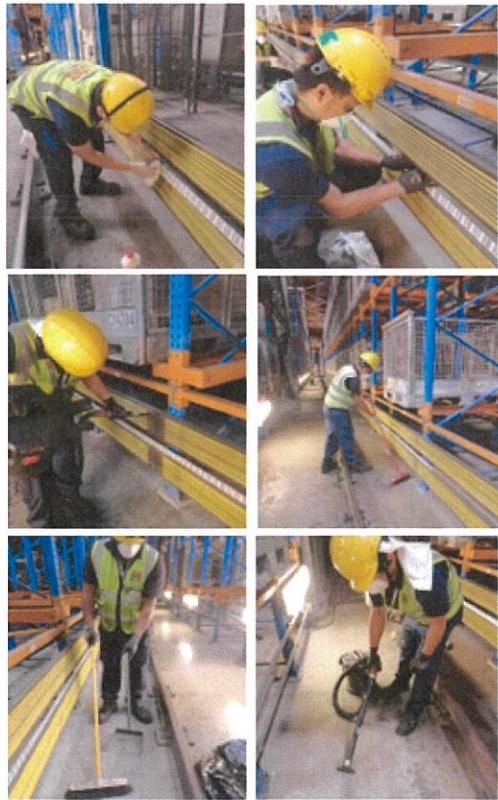
**Step 3: Switching OFF the Stack crane main switches and power feed rail power supply of the 3-phase power line and UPS (Application of LOTO):**

- a. Team Leaders must switch OFF all Stack crane access point breakers (BE\_F5 and BE\_F6), as well as the main switches 415VAC (ET\_Q1) and 240VAC (ET\_Q3) of the Stack crane.
- b. The Supervisor/Senior Technician must switch OFF the 3-phase power line main isolator switch (Q01) and the UPS main isolator switch (Q02) from TB01 and TB02. The communicator and Team Leaders must then wait for confirmation that the power line and UPS are OFF.
- c. After switching OFF the power line and UPS, use a multimeter to verify the presence of voltage in the power feed rail.
- d. Perform the Lock Out / Tag Out (LOTO) procedure.
- e. The Senior Technician/Supervisor must inform the communicator and Team Leaders that the 3-phase power line and UPS are OFF, allowing the team to begin their maintenance activities



**Step 4: Cleaning of barcode and sweeping of aisle floor:**

- a. Lead technicians must instruct their team members to clean the barcode using liquid soap detergent. After cleaning the barcode, make sure that the barcode is properly aligned and clipped to the barcode holder.
- b. Use a vacuum cleaner to clean the power feed rail joints.
- c. The floor has to be swept and cleaned, and debris needs to be gathered and thrown in the garbage bag. Use the vacuum cleaner to collect the dust from the floor.
- d. After use, vacuum cleaners must be cleaned by the technician and returned to the store while vacuum accessories must be returned to the technical office.



**Step 5: Switching ON the power supply of the 3-phase power line and UPS (Removal of LOTO):**

- The communicator must notify the team leaders when the aisle must be handed over, and the team leaders must instruct their team members to stop working and gather all of their materials and tools out from the aisle.
- Except for the Supervisor/Senior technician /Team leaders and communicator, all team members must move out from the aisle. They must ensure that no tools and materials will be left inside the aisle.
- The Senior Technician must remove the Lockout/Tagout and switch ON the 3-phase power line main isolator switch (Q01) and the UPS main isolator switch (Q02) from TB01 and TB02. The communicator and Team Leaders must wait for confirmation that the power line is ON.
- After switching ON, use a multimeter to verify the presence of voltage in the power feed rail.
- The Supervisor/Senior Technician must notify the communicator and Team Leaders that the power line is ON. They can then switch ON the access point breakers (BE\_F5 and BE\_F6) and the main 415VAC and 230VAC switches. After this, they can move out of the aisle to begin the handover procedure

**Note: The Team Leader must check the area from one end to the other end of the aisle to ensure that all of his team members are out of the aisle and that no materials or tools are left within.**


**Step 6: Aisle Hand-over procedure:**

- The communicator must notify the team leaders to close all the aisle doors and insert the panel key into the Control Panel key switch then turn the key switch to "Access Norm".
- After receiving confirmation from the team leader that the aisle is ready for handover, the communicator must call the control room operator to put the aisle in service.
- Control panel light indicator for "Access Not Allowed" will illuminate once the aisle is in in-service mode and all stacker cranes are in-service.
- Perform proper housekeeping by cleaning up all waste and properly arranging materials and tools.



Page No.	Page 11 of 16
Document No.	LSME-CRG-SOP-034
Revision No.	01

## 8 Risk Assessment

S/n	Job Step Description	Hazard	Risk / Consequence	Initial Risk Rating			Control measures			Residual Risk Rating				
				L	S	R=LXS	L	S	R=LXS	L	S	R=LXS		
1	Site preparation- (Shifting of materials and tools to Stacker Crane area)	Manual handling	Personal injuries, hernia, back pain, dislocation and other MSD's				- [Engineering controls]- Use of lifting equipment (hoist) such as trolley, pallet jack, forklift, etc. - [Personal protective equipment]- Usage of task-related PPEs - Helmet, Gloves, Safety shoes, coveralls & goggles. - [Administrative controls]- Buddy system shall be ensured while lifting heavy, uneven loads. - [Administrative controls]- Ensure workers do not lift more than 20kg by a single person, ask colleagues to assist themselves in any lifting intended to be done manually. - [Administrative controls]- Toolbox talks & Task Briefing to workers regarding how to execute a proper handling/lifting of material	1	3	3				
1	Site preparation- (Shifting of materials and tools to Stacker Crane area)	Slips/Trip and Fall (Access)	Injury to human body parts. (Sprain and broken bone, back injury etc.)				- [PPE] Use of proper PPE such as safety shoes, hard hat, reflective vest, goggles, gloves - [ADM] All activities shall be supervised by a competent person - [ADM] Electrical Cables management are properly placed with protection and Access way are free from obstacles/obstruction - [ADM] Maintaining good housekeeping and use toolbox kit for securing tools - [ADM] Only competent and trained personnel allowed for the task - [ADM] Proper supervision to be given	1	3	3				

**STACKER CRANE AISLE MONTHLY PREVENTIVE MAINTENANCE  
PROCEDURE**

Title:		Page No.		Page 12 of 16	
		Document No.		LSME-CRG-SOP-034	
		Revision No.		01	
<b>2 Isolation of Stackert Crane Aisle Access (MCC165;166;167;168;169)</b>					
2	Isolation of Stackert Crane Aisle Access (MCC165;166;167;168;169)	Unauthorized Entry (Access)	Injury to human body parts, (Sprain and broken bones, back injury, etc.); Death	<ul style="list-style-type: none"> <li>- [Administrative controls]- In-charge must call or inform the control room operator before accessing the equipment and request the control room to put the equipment in out-of-service</li> <li>- [Administrative controls]- Switch the key of the control panel to "Access request mode" once the request to access is approved by the control room. Remove the key from the control panel and insert it into the access key box. Turn the key and tap your access card to the access card reader. Open the aisle access door and remove the key from the access key box. The lead technician must keep the key during the duration of the maintenance task.</li> <li>- [Administrative controls]- Proper supervision by a competent person.</li> <li>- [Administrative controls]- Strictly comply with aisle access procedure.</li> </ul>	
4	5	20		1	3
3	Isolation of Stackert Crane (MCC141 to 160)	Hit by moving equipment	Injury to human body parts. (Sprain and broken bone, back injury etc.)	<ul style="list-style-type: none"> <li>- [Engineering controls]- The in-charge must keep the key during the duration of aisle maintenance.</li> <li>- [Administrative controls]- In-charge must call or inform the control room operator before accessing the equipment</li> <li>- [Administrative controls]- Only competent persons will be allowed to work.</li> </ul>	
4	5	20		3	1



Title:

## **STACKER CRANE AISLE MONTHLY PREVENTIVE MAINTENANCE PROCEDURE**

STACKER CRANE AISLE MONTHLY PREVENTIVE MAINTENANCE PROCEDURE						
Title:	Page No.			Page No.		
	Document No.	Revision No.	Document No.	Revision No.	Page No.	Page No.
4	Switching OFF the Stack Cranes main switches and power feed rail power supply of the 3-phase power line and UPS (Application of LOTO)	Electricity (Electrical)	Electrocution, Electrical Shock, Burns	4 5 20	<ul style="list-style-type: none"> <li>- [Administrative controls]- Team Leaders must switch OFF all Stack Cranes access point breakers (BE_F5 and BE_F6), as well as the main switches 415VAC and 230VAC of the Stack Cranes.</li> <li>- [Administrative controls]- The Supervisor/Senior Technician must switch OFF the 3-phase power line main isolator switch (Q01) and the UPS main isolator switch (Q02) from TB01 and TB02.</li> <li>- [Engineering controls]- Perform the Lock Out / Tag Out (LOTO) procedure.</li> <li>- [Engineering controls]- Ensure that the relay cabinet is properly closed and locked. The key must be kept by the person in charge of the activity.</li> <li>- [Administrative controls]- Ensure that the power is tested and confirmed as "OFF" before the activity.</li> <li>- [ADM] Only competent and trained person are allowed to Work</li> <li>- [ADM] Proper supervision to be given</li> <li>- [ENG] Use a voltmeter to check any voltage availability after discharge</li> <li>- [PPE] Nonconductive Gloves, safety shoes, safety helmets, and other job-specific PPEs need to be worn while working in electrical panels/circuits</li> </ul>	1 3 3
5	Cleaning of barcode	Contact with sharp edges	Cuts and laceration	3 3 9	<ul style="list-style-type: none"> <li>- [ADM] Conduct toolbox talk before any work commences</li> <li>- [ADM] Proper supervision of the task</li> <li>- [ADM] Task must be carried out and inspected by a competent person.</li> <li>- [PPE] Use of proper PPE (hand gloves)</li> </ul>	1 3 3
6	Replacement of barcode if defective or necessary	Contact with sharp edges	Cuts and laceration	3 3 9	<ul style="list-style-type: none"> <li>- [ADM] Conduct toolbox talk before any work commences</li> <li>- [ADM] Proper supervision of the task</li> <li>- [ADM] Task must be carried out and inspected by a competent person.</li> <li>- [PPE] Use of proper PPE (hand gloves)</li> </ul>	1 5 5

**STACKER CRANE AISLE MONTHLY PREVENTIVE MAINTENANCE  
PROCEDURE**

Title:

Page No.	Page <b>14</b> of <b>16</b>
Document No.	LSME-CRG-SOP-034
Revision No.	01

7	Switching ON the Stack Cranes main switches and power feed rail power supply of the 3-phase power line and UPS (Removal of LOTO)	Electricity (Electrical)	Electrocution, Electrical Shock, Burns	- [Administrative controls]- The Supervisor/Senior Technician must switch ON the 3-phase power line main isolator switch (Q01) and the UPS main isolator switch (Q02) from TB01 and TB02. - [Administrative controls]- Team Leaders must switch ON all Stack Cranes access point breakers (BE_F5 and BE_F6), as well as the main switches 415VAC and 230VAC of the Stack Cranes. - [Administrative controls]- Ensure proper energization of the equipment. - [ADM] Only competent and trained person are allowed to Work - [ADM] Proper supervision to be given - [ADM] Proper coordination with all other operatives who might be affected by the re-energization. - [PPE] Nonconductive Gloves, safety shoes, safety helmets and other job-specific PPEs need to be worn while working in electrical panels/circuits	4      5      20	4      4	1	4	4
8	Housekeeping	Slip and trip	Injury to human body parts. (Sprain and broken bone, back injury etc.)	- [Administrative controls]- Ensure proper handling of materials - [Administrative controls]- Ensure effective vigilance and concentration during the task - [Administrative controls]- Ensure proper supervision - [Personal protective equipment]- Wear gloves, mask, safety shoes, helmet and safety vest when cleaning up all rubbish	3      3      3	9	1	3	3
9	Equipment Handover	Unauthorized person in the aisle (hit by mobile equipment)	Injury to human body parts, (Sprain and broken bones, back injury, etc.); Death	- [Administrative controls] Ensure that all operatives have exited the Aisle before any equipment is handed over. - [Administrative controls] Lead technicians must do a headcount to ensure that all operatives on the aisle are out. - [Administrative controls]- All operatives must strictly adhere to aisle access procedure. - [Administrative controls]- Inspect the area to ensure the task is complete and is fit to return to normalcy - [Administrative control]- Ensure proper supervision of the task.	3      5      15		1	5	5



Title:

**STACKER CRANE AISLE MONTHLY  
PREVENTIVE MAINTENANCE PROCEDURE**

Page No.

Page **15 of 16**

Document No.

LSME-CRG-SOP-034

Revision No.

01

**RISK MATRIX**

		SEVERITY					
		Insignificant event	Minor event	Significant event	Highly Significant event	Major / Catastrophic event	
LIKELIHOOD	Certain to happen	5	5	10	15	20	25
	Very likely	4	4	8	12	16	20
	Likely	3	3	6	9	12	15
	Unlikely	2	2	4	6	8	10
	Very Unlikely	1	1	2	3	4	5
		0	1	2	3	4	5

From 1 to 3	Minimal Risk	Situation to be monitored to keep risk under control
From 4 to 9	Low Risk	Control measures to be implemented to reduce risk to acceptable residual level
From 10 to 16	Medium Risk	Immediate additional actions to be implemented to reduce risk to acceptable residual level
Above 16	High Risk	Work cannot start until the risk is reduced to acceptable level

## 9 Contact Numbers:

### HIA Emergency Contact Numbers

The following numbers are to be used.

On most HIA telephones only dial the last 3 numbers.



#### **Fire and Chemical Incident**



**First Aid and Ambulance**  
**call Airport Rescue and**  
**Fire Services**

40109 222



**Security Incident**  
**call Airport Security**

40109 555



**Police, Bomb Threat**  
**call Airport Police**

40109 666



**Safety Incident**  
**call Airport Safety**

40109 777



**Please do not dial 999.**

Name of Staff	Designation	Phone #
Nenad Jovkovic	LSME Maintenance Manager	6644 7400
Norbert Mueller	LSME Deputy Maintenance Manager	5584 7320
Bindu Pillai	LSME IT Manager	5582 7994
Shift Leader Duty Mobile Phone	Reactive Team Shift Leader	5550 1341
Mahesha Ramachandra	PM Team Shift Leader	5521 5328
James B. Gabuin	LSME Safety Officer	7078 5108
Francis Agbor	LSME Safety Officer	5598 0471