



# Electro-mechanical maintenance

## Main Objectives

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**NORTHLEC** Pty Ltd



# Agenda



## Agenda

1. Introduction – about Northlec
2. Present situation, problems and opportunities
3. Northlec's approach to electro-mechanical maintenance.
  - Team structure
  - How we will handle your present requirements
  - Continual improvement plan
  - Transition plan
  - Training plan
  - Alternative shift structure
4. Conclusion
5. Questions and feedback



# 1. Introduction



## About Northlec

- Melbourne-based
- Directors work on behalf of the company.
- Stable employees (7 years' service)



## About Northlec

- Melbourne-based
- Stable employees (7 years' service)
- Customers include:
  - Amcor Fibre Packaging (Citypak)
  - Swisslog Australia
  - Calltec Pty Ltd
  - Dexion
  - South Pacific Tyres
  - Toll Ipec
  - Baggage Sortation Management
  - Carter Holt Harvey



## Northlec Example of work.

- Case study: Load Guidance System



## Northlec at CCA Mentone & Moorabbin

- Other improvements we have implemented include:
  - RLD locking device
  - Installation of UPS on the monorail crane box
  - Adding crane RF access points
  - Segregating Trolley 1 and the main monorail loop
  - Conveyor extension at CCA Moorabbin





## Northlec understands the electro-mechanical requirements of the site

- We have worked at CCA Mentone since inception
- We have provided 30% of total shift manning levels over the past year (and occasionally managed entire shifts)
- We can staff every shift from Day 1 with employees who know the MHE



**You will be our No. 1 priority customer. We will :**

- Provide and manage staff for all electro-mechanical shifts
- Troubleshoot and provide preventative maintenance
- Manage the spare parts inventory
- Manage general building maintenance requirements
- Be proactive in continuous improvement of the MHE



**Each customer is our No. 1 priority customer.**

**We will :**

- Provide leadership, coaching and development including site-specific competency and professional development training
- Introduce quality procedures
- Instil good team spirit and morale among the maintenance team
- Honestly and ethically report and document all matters related to the MHE
- Ensure regular, productive and easy communication between the maintenance team members and with CCA



## 2. Present situation, problems and opportunities



## Key requirements for a lead electro-mechanical contractor are:

1. Speedy resolution of electro-mechanical faults in the MHE as they arise; and
2. Regular preventative maintenance, to keep the system working at maximum efficiency.



## Problems we see, and will address, include:

- Lack of a formal handover between shifts
- Low morale in parts of the maintenance workforce
- Lack of a formal structure and accountability to address some ongoing electro-mechanical problems



## Problems we see, and will address, include:

- Timeliness of some types of minor repairs
- Lack of ongoing, site-specific training among maintenance staff
- Lack of sense of urgency and proactive problem solving



## Problems we see, and will address, include:

- Ongoing union issues being dealt with at the CCA site instead of offsite.
- Lack of technical knowledge of the CCA Mentone site in the present contract maintenance manager
- No leadership or direction from the incumbent lead contractor, who is based overseas





## Problems we can address, include:

- 'Bare minimum' maintenance
- Inefficient use of staff
- Service requirements that are not communicated to staff and not driven by management



## Opportunities we usually need to tackle:

1. Improve the productivity of the maintenance workforce by focusing on sense of team, belonging to job satisfaction, recognition, and ongoing training
2. Use the SPOC error database to identify and reduce errors, and to manage the workload and performance of the maintenance workforce.



## Opportunities we need to tackle:

3. Set up project tasks, to address ongoing, minor technical errors, as well as major improvement opportunities:
  - Improving the operation of the flow lanes
  - Reducing the number of times the monorail stops each day because of flapping plastic wrap
  - Devising a way to monitor the condition of pallets
  - Assessing the sorter
  - Installing sensors on trolleys to eliminate over-replenishments



# Short and long-term objectives



## Short term

- A smooth, seamless, no-risks transition process
- Thorough familiarization with a businesses requirements and business.
- Site-specific training schedule.
- Introductory meetings with site customers
- Happier work environment and more positive culture
- Team spirit and morale a high priority



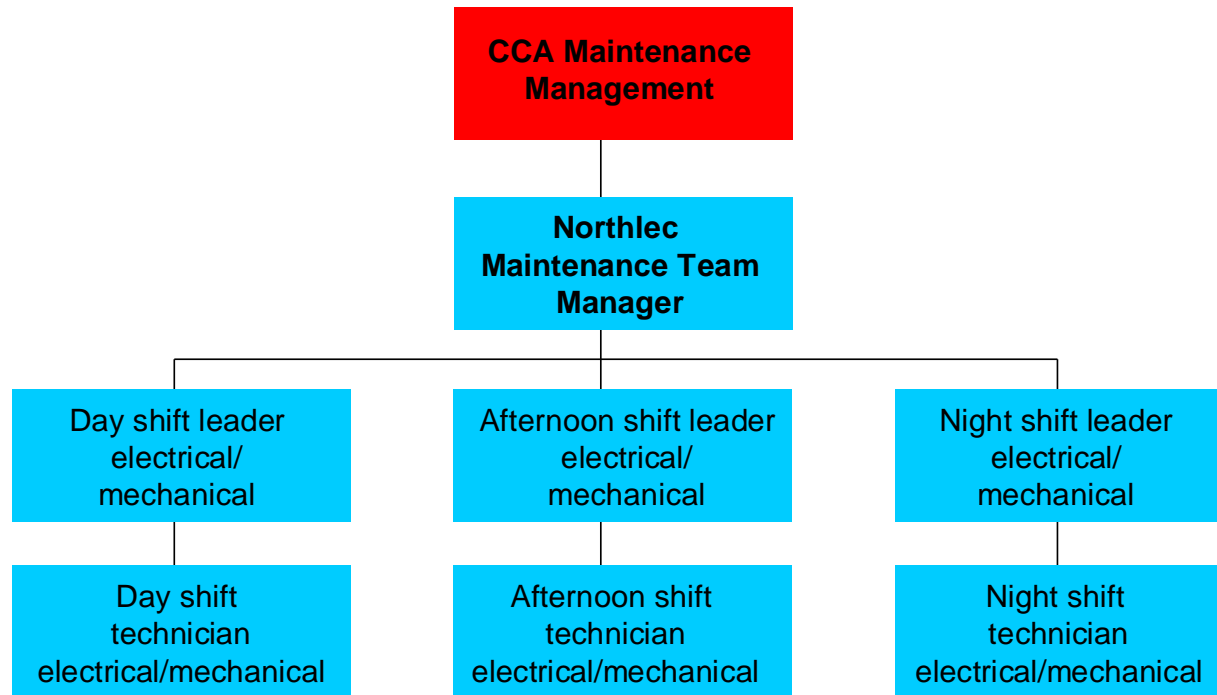
## Medium-long term

- Improve the productivity of the maintenance department
- Improve site performance to ensure maximum throughput at site
- Build a strong, committed, ongoing relationship between Northlec and our customer.
- Establish a larger permanent maintenance team that is seamlessly integrated into the workforce

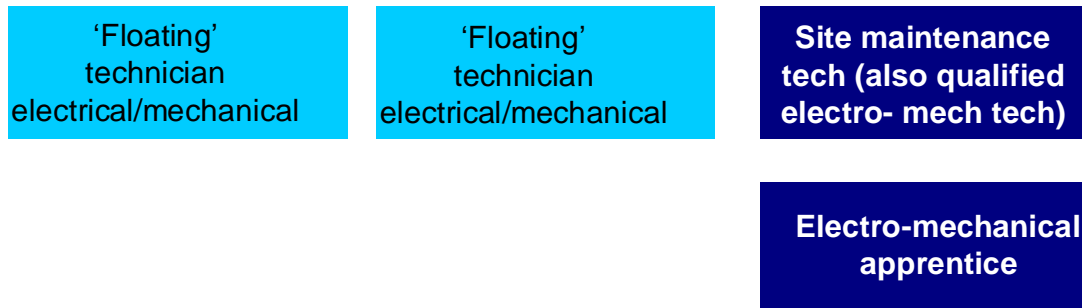


### **3. Our approach to electro-mechanical maintenance.**

# Sample team structure



## 'FLOATERS'



← Additions to shift structure proposed by Northlec  
←





## Benefits and value-adds of our team structure:

- Technically qualified Maintenance Team Manager.
- Added role: apprentice.
- Added role: dedicated factory maintenance technician.
- Multi-skilled technicians.
- Minimum of six technicians with experience.



## Team qualifications

- Written proposal will be submitted.



# How we will handle your current requirements



## Plant coverage/breakdown maintenance...[sample]

- Monday-Friday: three daily shifts of experienced technicians (3x8 hours, with 15 minute handover between shifts)
- Saturday-Sunday: covered from the existing team (with overtime as required by CCA)
- Guaranteed coverage of all requirements
- Coverage for pallet inverter, multi-shifter, and Coca-Cola trailers



## Preventative maintenance

Improvements:

1. Scheduled daily walk-through checks on the entire system once a day
2. Predictive, as well as preventative maintenance
  - Coverage during week days, subject to machine availability and workload
  - Proactive maintenance



## Building maintenance

- Attending to 'minor' jobs required in physical environment
- We will commit to fixing everything we can ourselves
- Specialists as required



# Continual improvement plan



## Continual improvement plan

- Improving the operation of the flow lanes
- Minimizing plastic errors in the system





# Continual improvement plan

## Initial off-site Continual Improvement Summit

- Full-day workshop
- Joint Maintenance Management and Northlec team
- convened by Bob Gvero



# Transition plan



## Transition plan - Staffing

- Zero transition risk
  - We walk in with six electro-mechanical technicians with extensive experience in the MHE
- We will also:
  - Retain key knowledge by hiring up to three of the current Swisslog maintenance staff
  - Hire two mechanical fitters
  - Formally review our staff skills and training
  - Establish a rostering framework



## Transition plan - Documentation

- Familiarising ourselves with a clients documentation, reporting and planning requirements
- Review and update our internal quality and OH&S documentation
- Document additional processes for operational or management reporting
- Stocktake the spare parts inventory
- Review manuals, warranties, and guarantees
- Review existing forward planning
- Ensure that our staff records are up to date

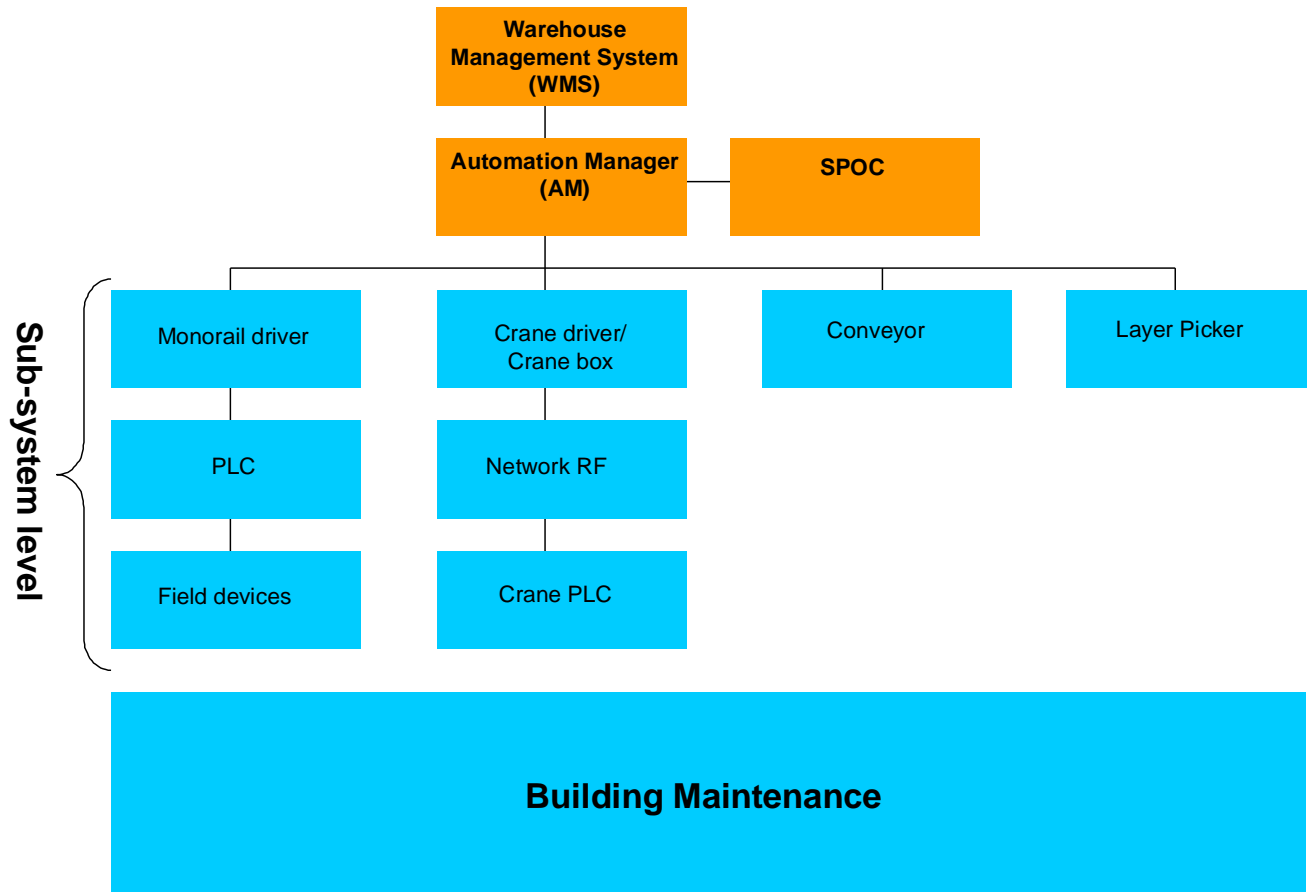


## Transition plan - Other

- Meetings with key Managers
  - Maintenance leaders
  - Direct customers (Tower Manager, Docks Manager and Pick Haul Manager)
  - Distribution Centre Manager
- Review and update company and employee equipment, including specialist tools and PPE

# A short transition and continuing relationship with Swisslog

- A fortnight working side by side
- Ongoing division of responsibilities:





## Transition plan - Other

- Meetings with key Managers
  - Maintenance leaders
  - Direct customers (Tower Manager, Docks Manager and Pick Haul Manager)
  - Distribution Centre Manager
- A fortnight working alongside the outgoing lead maintenance contractor
- Review and update company and employee equipment, including specialist tools and PPE



# Training plan





System	Training we will implement
<b>Monorail</b>	<ol style="list-style-type: none"> <li>1. System operation and safety</li> <li>2. System control and workflows</li> <li>3. PLC software and controls</li> <li>4. Fault diagnostics (AAT overseas)</li> <li>5. DK2 operations: testing, fault-finding, software and hardware applications</li> <li>6. LJU trolley controls</li> <li>7. LJU trolley control operations; fault-finding, software and hardware applications</li> <li>8. Bux Box</li> <li>9. SWAC</li> <li>10. Track Switch</li> </ol>
<b>Cranes Accalon</b>	<ol style="list-style-type: none"> <li>1. System operation and safety</li> <li>2. System control and workflows</li> <li>3. PLC software and controls</li> <li>4. 'X' Axis laser</li> <li>5. 'Y' Axis encoder tape &amp; encoder</li> <li>6. Crane box operations</li> <li>7. SEW drivers</li> <li>8. RF network</li> <li>9. Racking maintenance</li> <li>10. Crane Aisle equipment</li> <li>11. Mechanical maintenance</li> <li>12. Electrical maintenance</li> </ol>
<b>Conveyor Accalon</b>	<ol style="list-style-type: none"> <li>1. System operation and safety</li> <li>2. System control and workflows</li> <li>3. PLC software and controls</li> <li>4. Touch panels</li> <li>5. Con Box operations</li> <li>6. Mechanical maintenance</li> <li>7. VSD drive</li> <li>8. Shuttle car 'X' Axis encoder tape &amp; encoder fault-finding and replacement</li> <li>9. Electrical maintenance</li> <li>10. Wago input &amp; output module, fault-finding and replacement</li> <li>11. Weight unit</li> <li>12. Bar code scanners, Siemens PLC login grids</li> </ol>



System	Training we will implement
<b>Docks RLD &amp; ATL</b>	<ol style="list-style-type: none"> <li>1. System operation and safety</li> <li>2. System control and workflows</li> <li>3. PLC software and controls</li> <li>4. Touch panels</li> <li>5. Con Box operations</li> <li>6. Mechanical maintenance</li> </ol>
<b>Layer Picker Univeyer</b>	<ol style="list-style-type: none"> <li>1. System operation and safety</li> <li>2. System control and workflows</li> <li>3. PLC software and controls</li> <li>4. Touch panels</li> <li>5. Con Box operations</li> <li>6. Mechanical maintenance</li> <li>7. VSD drive</li> <li>8. Shuttle car 'X' Axis encoder tape &amp; encoder fault-finding and replacement</li> <li>9. LMS</li> <li>10. Weighing unit</li> </ol>
<b>Label Applicators</b>	<ol style="list-style-type: none"> <li>1. System operation and safety</li> <li>2. System control and workflows</li> <li>3. PLC software and controls</li> <li>4. Touch panels</li> <li>5. Con Box operations</li> <li>6. Mechanical maintenance</li> <li>7. VSD drive</li> <li>8. Shuttle car 'X' Axis encoder tape &amp; encoder fault-finding and replacement</li> <li>9. PCU (printer control unit)</li> </ol>
<b>Stretch Wrapper</b>	<ol style="list-style-type: none"> <li>1. System operation and safety</li> <li>2. System control and workflows</li> <li>3. PLC software and controls</li> <li>4. Touch panels</li> <li>5. Con Box operations</li> <li>6. Mechanical maintenance</li> <li>7. VSD drive</li> <li>8. Shuttle car 'X' Axis encoder tape &amp; encoder fault-finding and replacement</li> </ol>



System	Training we will implement
<b>Racking</b>	<ol style="list-style-type: none"> <li>1. Flow lanes: PLS etc</li> <li>2. Mechanical maintenance</li> </ol>
<b>Safety</b>	<ul style="list-style-type: none"> <li>• Harness training</li> <li>• OH&amp;S</li> <li>• Risk assessments</li> <li>• Boom lift</li> <li>• Hazard identification</li> </ul>
<b>Electrical</b>	<ul style="list-style-type: none"> <li>• Siemens PLC Basic</li> <li>• Siemens PLC Advanced</li> <li>• 'S' Permit</li> <li>• Profibus system</li> <li>• ASI system</li> <li>• Touch panels HMI</li> <li>• Encoder operations – incremental absolute laser</li> </ul>
<b>Mechanical</b>	<ul style="list-style-type: none"> <li>• Basic welding (MIG, TIG, ARC)</li> <li>• Vibration analysis</li> <li>• Bearing poller dismantling etc</li> </ul>
<b>Procedures</b>	<ul style="list-style-type: none"> <li>• Training documentation</li> <li>• Error recovery flow charts</li> <li>• System equipment error recovery procedures</li> <li>• Standard Operating Procedures (SOPs)</li> </ul>
<b>Academic</b>	<p>Leadership training            Coaching training            Issue resolution training            Managing a team/team communication</p>
<b>Staff</b>	<p>Development plans reviewed quarterly            Performance plans reviewed quarterly            Position descriptions for all staff</p>



# Alternative shift structure



## The '309 day' system

- 2 x 12 hour shifts: 6.00am to 6.00pm and 6.00pm to 6.00am
- Shifts A and B are day and C and D are night
- 1 Maintenance Manager, 2 Floaters, 1 Apprentice
  - Shift A: 1 Shift Leader, Electrical, Mechanical, 1 Technician, Electrical Mechanical
  - Shift B: 1 Shift Leader, Electrical, Mechanical, 1 Technician, Electrical Mechanical
  - Shift C: 1 Shift Leader, Electrical, Mechanical, 1 Technician, Electrical Mechanical
  - Shift D: 1 Shift Leader, Electrical, Mechanical, 1 Technician, Electrical Mechanical

# Example (2007)

July	Day	SHIFT
1	S	A
2	M	A
3	T	A
4	W	A
5	T	B
6	F	B
7	S	B
8	S	
9	M	A
10	T	A
11	W	A
12	T	B
13	F	B
14	S	B
15	S	
16	M	B
17	T	B
18	W	B
19	T	A
20	F	A
21	S	A
22	S	A
23	M	B
24	T	B
25	W	B
26	T	A
27	F	A
28	S	A
29	S	
30	M	B
31	T	B

# Example (2007)

August	Day	Shift
1	W	B
2	T	A
3	F	A
4	S	A
5	S	
6	M	A
7	T	A
8	W	A
9	T	B
10	F	B
11	S	B
12	S	B
13	M	A
14	T	A



# Pricing





## Value-added benefits

- Technically qualified Maintenance Team Manager
- Two additional roles in the shift structure; a dedicated factory maintenance technician and electro-mechanical apprentice
- Ongoing training and multi-skilling
- Local team with client area of experience
- Building maintenance at no extra cost
- Continual improvement at no extra cost
- Assistance for the transport system



# Conclusion



## Three reasons to choose Northlec

- No risk
- You will be our No.1 priority customer
- We will improve site performance



# Questions and feedback