Stock Feed Manufacturers' Council of Australia Inc.
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2.2.4, 2.2.5, 2.2.6, & 2.2.7. Preventative Maintenance program.

Standard

2.2.4 Is a preventative maintenance program in use?

2.2.5 Is there a system of logging maintenance work when completed?

Confirm through viewing records for major pieces of plant and equipment.

2.2.6 Are monitoring and/or controlling devices (weigh scales, temperature probes, flow meters, etc) monitored for accuracy and recalibrated as per maintenance plan?

2.2.7 Are records kept of calibration monitoring?

A procedure for monitoring should define the method, frequency of checking and include the use of certified weights or a third-party operator where required with specific emphasis on critical control points.

Confirm through sighting records, e.g. certificates of calibration for weighbridges and trade scales as well as internal monitoring.

Purpose

To implement an effective preventative maintenance program for all critical equipment, machinery, and general equipment that impact product quality, feed safety and regulatory compliance of finished feeds. The program must include a logging system with proper record-keeping for all maintenance activities.

Reason

Preventative maintenance prevents breakdowns of critical equipment and maintains the quality of the product through monitoring and maintaining the condition of equipment. It also ensures a consistently produced finished product by controlling potential variation caused by processing equipment. It is equally important for general equipment and machinery to be checked and serviced on a regular basis as part of an operator's preventative maintenance program. This will improve performance and longevity of all equipment.

Additionally, when dealing with mill equipment, a faulty or absence of regular servicing can be dangerous and increase the risk of workplace incidents. Risks can arise from leaks or deterioration of equipment quality.

What is Acceptable?

A preventative maintenance program shall be documented with instructions and responsibilities assigned. The logging system can be by hand or electronically managed.

The inventory list shall contain enough detail to record critical information of equipment, maintenance task, frequency, the person responsible and procedure to follow. All procedures shall have been previously validated. Scale tolerances should also be recorded. Operators shall maintain a spare parts inventory for ease of access and purchasing parts when required. The inventory list avoids disruptions in production that can affect the quality of the product.

A schedule shall be created based off the inventory list and grouped by frequency, i.e. all daily maintenance tasks are distributed at start of shift to responsible person. The recording of all completed tasks shall be logged, and records maintained.

Risk assessments shall be conducted on critical processing equipment, particularly where a critical control point has been identified. The intention of a risk assessment is to consider all potential failures or risks associated with the function.

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Fact Sheets to consider:

- 2.2.1, 2.2.2 & 2.2.3
- 2.7.1 & 2.7.2.

See example procedure below:

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Example Procedure

MAINTENANCE & CALIBRATION PROGRAM

1. PURPOSE

Any equipment that may have a critical influence on the quality, feed safety and regulatory compliance of finished goods, must have a regular logged preventative maintenance program including calibration of all measuring equipment.

The aim of this procedure is to provide guidance for the development and implementation of a preventative maintenance program and calibration of critical equipment and general machinery used in the manufacture of [insert product/s].

2. SCOPE

This procedure covers all general equipment and critical processing equipment with particular attention to Critical Control Points. All preventative maintenance programs must be administered by trained operators, and/or licensed external contractors.

All safety procedures and instructions, including Permit To Work, shall be used in conjunction with this procedure.

3. TERMS & DEFINITIONS

Inventory: A comprehensive list of equipment, parts, tools and resources necessary for conducting all maintenance activities.

Preventative Maintenance: Systematic approach to maintaining critical equipment through scheduled servicing, inspections and repairs.

4. PROCESS

Inventory List & Maintenance Schedule
Any substances used for production equipment operation, maintenance and calibration should not compromise product integrity, only appropriate technical grade sources should be considered and used. Scales used for internal calibrations need to be certified scales.

Asset		Component	Maintenance Task	Frequency	Responsibility	Procedure	Record
Equipment Name:				*Daily, Weekly, Fortnight*			
Serial No.							
Location:							
Equipment Name:				*Daily, Weekly, Fortnight*			
Serial No.							
Location:							
Equipment Name:				*Daily, Weekly, Fortnight*			
Serial No.							
Location:							

** Your inventory list will set the foundation of a preventative maintenance schedule. Copy and paste each cell to expand the table.*

Risk Assessment
A risk assessment shall be developed that accounts for all Critical Equipment used in the manufacturing process, with particular attention to equipment that directly impacts Critical Control Points (CCPs). Measuring equipment risk assessment should consider tolerances. Refer to HACCP system.

Risk Assessment Considerations:

1. **Identify Critical Equipment:** List equipment that play a significant role in product quality, feed safety and regulatory compliance.
2. **Define Functionality:** How does each equipment function and operate? What are their potential failure modes and maintenance requirements?
3. **Assess Potential Failure:** What are the potential failures and their associated risk? Such as; mechanical failures, wear and tear, corrosion.
4. **Determine Severity:** What is the potential impact of equipment failure on product quality, feed safety and regulatory compliance. Are there any major disruptions to operations?
5. **Determine Likelihood:** What is the likelihood of failure? When determining likelihood, ensure to consider: maintenance history, operator competence, industry standards.
6. **Risk prioritisation:** Based on a combination of severity and likelihood, prioritise high risk failures of critical equipment.
7. **Mitigation strategies:** With the management team, led by operations manager, adjust the preventative maintenance schedule based on the outcome of each risk assessment. Additional mitigation strategies may include: routine operator training, equipment upgrade, contingency plans.
8. **Monitoring & Review:** Set an appropriate review period to ensure emerging risks are accounted for and validity of risk assessment with respect to product quality, feed safety and regulatory compliance.

Reactive Maintenance Recording and Out of Specification/Tolerance
If equipment is identified to not be performing to satisfaction, then a "HOLD" or "QUARANTINE" label should be attached to prevent further use until re-calibration or repair has been completed. Records of reactive maintenance should be logged including:

1. Type of maintenance required;
2. Person responsible for completing maintenance;
3. Results of re-calibration pass status;
4. Verification maintenance is complete and equipment can be released for re-entry to use.

NOTE: Major repairs would require a full equipment revalidation.

Spare Parts Inventory
A critical spare parts inventory shall be developed from the outcome of the Risk Assessment and the Maintenance Schedule.

For general equipment and machinery, spare parts shall be managed by [insert position] on the same inventory of critical spare parts. A method to distinguish the two apart can be by colour coordination or separate tables.

Maintenance Task Instructions

- Maintenance procedures.
- Lubrication procedures.
- Tool reconciliation procedures.
- Calibration and tolerances procedures.
- Procedures for temporary repairs.
- Procedures for emergency repairs.
- Spare parts inventory program.
- Training procedures.

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- "Re-entry to use" procedures.
- Audit procedures to verify that the work is being done as per requirements.

OUTCOME
A proactive approach to ensure continual use and safety of critical equipment and general machinery and equipment.

To minimise unplanned shutdowns and disruption to customer supply and preventing feed safety risks from faulty, leaking, or deteriorating equipment.

5. DOCUMENTATION & RECORDS

The following records shall be maintained to assure this program is implemented:

- Calibration Procedure & Records
- Preventative Maintenance Schedule & Records
- Work Permits
- Work Approval Clearance Reports

6. DOCUMENT HISTORY

Version	*Date*	*Description of changes*	*Author*
1	dd/mm/yy	Created original document.	name