

Chapter 1 : SAP PM Overview

The Plant Maintenance Resource Center is the premier web resource for industrial Maintenance professionals. It includes links to maintenance consultants, CMMS and maintenance software, CMMS vendors, maintenance conferences and conference papers, articles on maintenance, and many other valuable resources.

Equipment breakdowns are bad enough as they impede aquaculture feed production, but at least as bad is machinery which is not working to design which may, through short weighing, or improper mixing, produce a defective feed. Also possible is a threat to human health. Keeping motors, scales, pellet dies, conveyors and all other components of the mill in proper working order is as important as formulation or the quality of ingredients which go into the finished feed. Mechanical or electronic failures may occur from time to time in a complex system like a feed mill, but proper attention to preventive maintenance will minimize down time and the prospect of the customer receiving feed which is out of specification. A good preventive maintenance programme should provide adequate maintenance at reasonable cost Appendix III. Reduce major repairs by correcting minor difficulties as soon as they are evident. Do not punish employees who are trying to report a defect beyond their control. Maintain equipment in a more productive state. Keep it clean; repair or replace lost or worn parts immediately. Follow the machinery manual recommendations. Improve scheduling of repairs. Do not postpone needed repairs. Delaying repairs usually results in much more costly problems later on. Some parts as they become worn become dangerous, as in worn chain or belt drives. Staff are valuable and injuries are costly from the standpoint of lost time and training replacements, not to mention adverse impacts on employee morale. A well-maintained mill looks good to the customer and helps assure the customer that the feed is made correctly the first time. Reduce overall operating costs. The miller of aquaculture feeds benefits from a well-maintained facility through reduced costs of operation and customer satisfaction. Provide trained maintenance personnel. Training of maintenance staff should be a high priority with high-level management oversight. Too often maintenance is seen as the bottom of the ladder, when in reality the quality and training of staff for this important responsibility should be paramount. Building and Grounds Maintenance: The building grounds shall be adequately drained and maintained to be reasonably free from litter, waste, refuse, uncut weeds or grass, standing water and improperly stored equipment. The buildings shall be maintained in a reasonably clean and orderly manner. Adequate space, ventilation and lighting shall be maintained for the proper performance of all manufacturing, storing, labelling, quality assurance and maintenance aspects of aquaculture feed manufacturing. In Appendix IV a checklist is provided to highlight generalised preventive maintenance functions, which are to be checked periodically. Each plant manager should take this guideline and revise it to conform to the actual conditions of his plant. A log record book or computer record should be maintained on a daily basis.

Chapter 2 : What is Plant Maintenance? (with pictures)

Reliability centered maintenance (RCM) is a maintenance strategy that is often employed in factories. This is an approach that not only seeks to maintain minimal levels of plant efficiency, but also looks for ways to improve production.

Feedback Plant and equipment maintenance Maintenance on plant and equipment is carried out to prevent problems arising, to put faults right, and to ensure equipment is working effectively. Maintenance may be part of a planned programme or may have to be carried out at short notice after a breakdown. It always involves non-routine activities and can expose those involved and others to a range of risks. Why is maintenance of plant and equipment important? An effective maintenance programme will make plant and equipment more reliable. Fewer breakdowns will mean less dangerous contact with machinery is required, as well as having the cost benefits of better productivity and efficiency. Additional hazards can occur when machinery becomes unreliable and develops faults. Maintenance allows these faults to be diagnosed early to manage any risks. However, maintenance needs to be correctly planned and carried out. What do I have to do? If you are an employer and you provide equipment for use, from hand tools and ladders to electrical power tools and larger plant, you need to demonstrate that you have arrangements in place to make sure they are maintained in a safe condition. Think about what hazards can occur: This can be a particular problem if maintenance is during normal production work or where there are contractors who are unfamiliar with the site. A worker received crush injuries to his head and neck while he was undertaking maintenance work, when the hoist he was working on started up. What caused the accident? The power supply to the hoist had not been isolated before work started. This was because workers had not been given adequate training or instruction on safe isolation procedures. It was also found that isolation by the interlocked gates could be bypassed. Extra care is also required if maintenance involves: Establishing a planned maintenance programme may be a useful step towards reducing risk, as well as having a reporting procedure for workers who may notice problems while working on machinery. Some items of plant and equipment may have safety-critical features where deterioration would cause a risk. You must have arrangements in place to make sure the necessary inspections take place. But there are other steps to consider: Before you start maintenance Decide if the work should be done by specialist contractors. This will avoid unforeseen delays and reduce the risks Make sure maintenance staff are competent and have appropriate clothing and equipment Try and use downtime for maintenance. A worker fell through a gap in the walkway, seriously injuring his shoulder. The fall happened because there was nothing to make workers aware of the dangers caused by machinery maintenance. Barriers, guards and signs should have been used to indicate that maintenance was taking place. Safe plant and equipment Plant and equipment must be made safe before maintenance starts. Safe isolation Ensure moving plant has stopped and isolate electrical and other power supplies. Most maintenance should be carried out with the power off. If the work is near uninsulated, overhead electrical conductors, eg close to overhead travelling cranes, cut the power off first Lock off machines if there is a chance the power could be accidentally switched back on Isolate plant and pipelines containing pressured fluid, gas, steam or hazardous material. Lock off isolating valves Other factors you need to consider Release any stored energy, such as compressed air or hydraulic pressure that could cause the machine to move or cycle Support parts of plant that could fall, eg support the blades of down-stroking bale cutters and guillotines with blocks Allow components that operate at high temperatures time to cool Place mobile plant in neutral gear, apply the brake and chock the wheels Safely clean out vessels containing flammable solids, liquids, gases or dusts, and check them before hot work is carried out to prevent explosions. You may need specialist help and advice to do this safely Avoid entering tanks and vessels where possible. This can be very high-risk work.

Chapter 3 : Plant Maintenance in GFEBS

The Plant Maintenance Department exists as a service organization that is dedicated to providing and maintaining a safe, orderly and respectful learning environment which will contribute to student and staff achievements.

This can include anything from regular checks of equipment to make sure they are functioning properly, to cleaning garbage bins and toilets. The general aim of plant maintenance is to create a productive working environment that is also safe for workers. Since there are many different types of plants and factories, the ways to maintain these facilities often vary. For example, a steel mill will have different machinery than a food processing plant. This means that each place of business generally has its own maintenance plan, tailored to its particularities. A maintenance plan can include scheduling times for equipment checkups, trouble-shooting, and general clean-up. Most plants employ their own maintenance staff. This can include workers such as on-site engineers, whose job is to make sure that machines continue to operate effectively. This is an especially important for plants that use equipment designed for assembly lines, since a stoppage of the line can be financially damaging. Ad Reliability centered maintenance RCM is a maintenance strategy that is often employed in factories. This is an approach that not only seeks to maintain minimal levels of plant efficiency, but also looks for ways to improve production. Such an increase can be accomplished by various means, like adding more workers to a machine or by making engineering changes. Preventative maintenance is also an important aspect of making sure a plant runs efficiently. One common preventative measure is the periodic checking of machinery to see if it is operating correctly. This can prevent equipment from breaking down, or help to anticipate a possible problem that would otherwise cost the plant money because of a work stoppage. Janitors are an important part of plant maintenance. These maintenance technicians do not work directly with machines, but instead make sure that the plant facilities are clean and safe. This can include anything from removing garbage to cleaning bathrooms and eating areas. Many times, janitors will be responsible for the maintenance of the factory floor “and keeping it clean of any spills that could be dangerous to equipment operators. There are also many private plant maintenance companies. These firms are generally contracted by a factory to check equipment and make repairs. They can also perform tasks, such as corrosion prevention, acid proofing, or repairing concrete floors.

Chapter 4 : Industrial Plant Maintenance | The Jamar Company

This component contains the functions for Plant Maintenance. Through integration with other modules (for example, Materials Management, Production, Sales and Distribution, Personnel Management, and Controlling) the data is always kept current and processes that are necessary for Plant Maintenance.

Objectives, Importance and Types Article shared by: After reading this article you will learn about: Objectives of Plant Maintenance 2. Importance of Plant Maintenance 3. Objectives of Plant Maintenance: Importance of Plant Maintenance: If a piece of equipment goes out of order in a flow production factory, the whole line will soon come to a halt. Other production lines may also stop unless the initial fault is cleared. This results in an immediate loss in productivity and a diminution of several thousand rupees per hour of output. Loss in production time. Spoilt materials because sudden stoppage of process damages in-process materials. Failure to recover overheads because of loss in production hours. Need for subcontracting work. Temporary work shortages-workers require alternative work. Types of Plant Maintenance: Maintenance may be classified into following categories: Corrective or breakdown maintenance implies that repairs are made after the equipment is out of order and it cannot perform its normal function any longer, e. Under such conditions, production department calls on the maintenance department to rectify the defect. The maintenance department checks into the difficulty and makes the necessary repairs. After removing the fault, maintenance engineers do not attend the equipment again until another failure or breakdown occurs. This type of maintenance may be quite justified in small factories which: In many factories make-and-mend is the rule rather than the exception. Breakdown maintenance practice is economical for those non-critical equipment whose down-time and repair costs are less this way than with any other type of maintenance. There is no planned interference with production programmes-. Typical Causes of Equipment Breakdown: Disadvantages of Breakdown Maintenance: This leads to poor, hurried maintenance and excessive delays in production. Scheduled maintenance is a stitch-in-time procedure aimed at avoiding breakdowns. Breakdowns can be dangerous to life and as far as possible should be minimized. Inspection, lubrication, servicing, etc. Scheduled maintenance practice is generally followed for overhauling of machines, cleaning of water and other tanks, white-washing of buildings, etc. A system of scheduled, planned or preventive maintenance tries to minimize the problems of breakdown maintenance. It is a stitch-in-time procedure. It locates weak spots such as bearing surfaces, parts under excessive vibrations, etc. The underlying principle of preventive maintenance is that prevention is better than cure. Preventive Maintenance or PM Involves: The key to all good preventive maintenance programmes, however, is inspection. Help can be taken of suitable statistical techniques in order to find how often to inspect. Elements or Procedure of Preventive Maintenance: It must be tailor-made-measured and cut to fit the requirements of individual industry or plant; this is because all industries differ in size, age, location, machinery, resources, layout, and construction. Who should do PM? Preventive maintenance may be taken care by: The choice depends upon, again, the conditions such as size, age, location, machinery, etc. However, a perfect coordination between production department and PM personnel is highly essential for the success of the preventive maintenance practice, because PM personnel can carry out preventive maintenance only when production department releases the machinery for the same. For this reason, certain industries keep PM under production department. But as the work load of PM increases, PM is transferred either to maintenance department or to a separate division of inspectors, crafts and supervisors. Approximate size of preventive maintenance force: Where to start PM? One should not apply PM to the entire plant at once. PM programme should be built up in pieces; when one piece is finished, start the next. It is better to tackle one section or department at a time or one type of machinery over the entire plant. The entire PM programme hangs on inspections and their related duties of adjustments and repairs. What to inspect in PM? Preventive maintenance is costly, therefore one should strike a favourable balance between this cost and the cost of not utilizing PM. Application of PM to all the items in a plant may be uneconomical. In almost all industries, there are certain key items which are more essential for continuing the production than others. In other words, a breakdown of key items would seriously interrupt production and badly affect production schedule, etc. A few

examples of key-items are as follows: What to inspect for? After listing the equipment requiring PM, the next step is to decide-what physical parts of each piece of equipment need attention. These parts can be identified by the craftsmen and supervisors who maintain these equipment; they, by their experience, know the items liable to wear or equipment maladjustments taking place under normal conditions. Another guide in this matter can be the service manual issued by the equipment manufacturer. After making the list of machines and their parts needing PM, i. How often to inspect-frequency? The decision-how often to inspect is made, i In the light of past experience. For example, if annual inspection keeps a key-item in perfect running condition, one may not think of inspecting the same every six months. However, one may try to see if the same key-item will work well if instead annually is inspected after every 18 months. If the cost of PM is greater than the savings, one may go for reducing the frequency of inspections. Over-inspection is needless expensive and may involve more productive downtime than an emergency breakdown. Under-inspection results in frequent and more breakdowns and earlier replacements. A good balance between the two is very essential to bring optimum saving. Frequency of inspections may be decided depending upon the following equipment conditions: In setting up schedules one must ensure to keep production going at lowest overall cost. Schedules should be set in consultation with production department and as per the production needs, as far as possible. PM inspection and service functions can be classified into three following groups: Routine upkeep or periodic inspections may be scheduled as follows: It is very necessary to keep records because they are the only reliable guides for measuring the effectiveness of the preventive maintenance programme. Only records tell us, what is the situation at present and where it is going. Good updated records, proper filing equipment and adequate clerical help are the backbone of PM programme. Record keeping is also necessary: Guidelines to good PM records: Storage of spare parts: Spare parts are stored in order to reduce the loss of production time. What spare parts to keep and how much to keep depends upon: Spare parts once procured should be stored adequately in order to locate them immediately at the time of need for this: Then, by the code number of the part, he will identify the required spare part from the many parts lying in that bin. Control and evaluation of PM: A PM programme be coordinated and must remain under control at all times. To maintain control of the PM programme, the following measures should be take: Analytical approach makes use of following relations: Reduced breakdowns and connected down-time. Lesser odd-time repairs and reduced overtime to the maintenance work-force. Greater safety for workers. Fewer large-scale and repetitive repairs. Low maintenance and repair costs. Less stand-by or reserve equipment, and spare parts. Identification of equipment requiring high maintenance costs. Lower unit cost of manufacture. Better product quality and fewer product rejects.

Chapter 5 : Power Plant Maintenance Jobs, Employment | calendrierdelascience.com

Plant Maintenance/Central Heating Plant The plant maintenance group is made up of over 35 highly skilled individuals with dedication and a focus on providing exceptional service to the university's infrastructure.

Chapter 6 : Plant Maintenance - SAP Documentation

PLANT MAINTENANCE AND REPAIR. The plant maintenance program is vital to consistent production of high quality feeds and no less important to cost control and assurance to the customer that their feed will arrive on time and to formula specification (Parr,).

Chapter 7 : Plant and equipment maintenance

Plant Maintenance is an integral part of the logistics function and in SAP it is fully integrated with other components including Materials Management (MM) and Production (PP).

Chapter 8 : Plant Maintenance, Facility Maintenance | GSM Industrial

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Plant maintenance Maintenance is defined as that function of production management concerned with the day to day problem of keeping the physical plant in good.