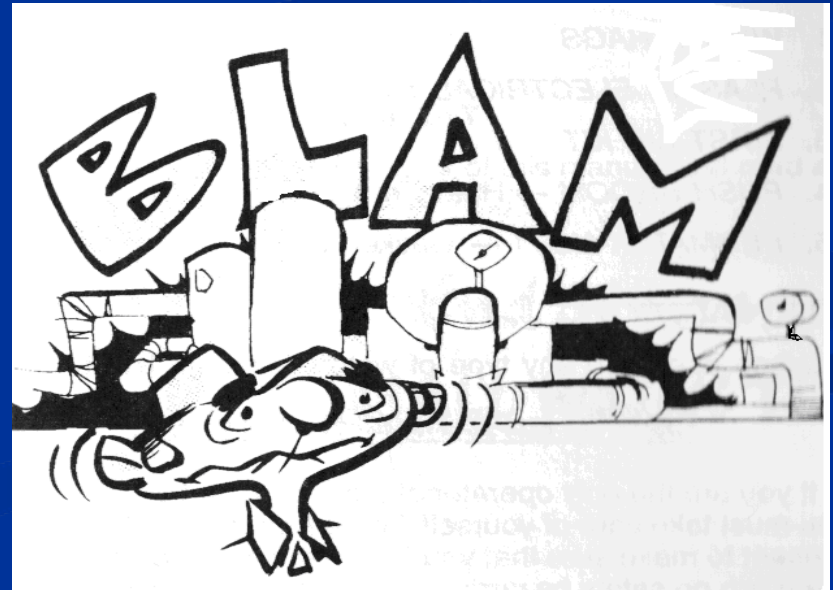


# Preventive Maintenance



# What is Preventive Maintenance

- Preventive maintenance is a schedule of planned maintenance actions aimed at the prevention of breakdowns and failures.
- The primary goal of preventive maintenance is to prevent the failure of equipment before it actually occurs.



- It is designed to preserve and enhance equipment reliability by replacing worn components before they actually fail.



- Preventive maintenance activities include equipment checks, partial or complete overhauls at specified periods, oil changes, lubrication.



- In addition, workers can record equipment deterioration so they know to replace or repair worn parts before they cause system failure

Cl <sup>2</sup> Analyzer (d)	
	lab results (daily)
	meter readings (daily)
	sample flow
	general condition
	W.O. Generated

Distribution Pump 1 (d)						
Check Packing for Leaking	y / n	y / n	y / n	y / n	y / n	y / n
Pump Vibration	y / n	y / n	y / n	y / n	y / n	y / n
Excessive Noise	y / n	y / n	y / n	y / n	y / n	y / n
Hours	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.
Pressure Discharge	kpa	kpa	kpa	kpa	kpa	kpa

Monday	Tuesday	Wednesday	Thursday	Friday

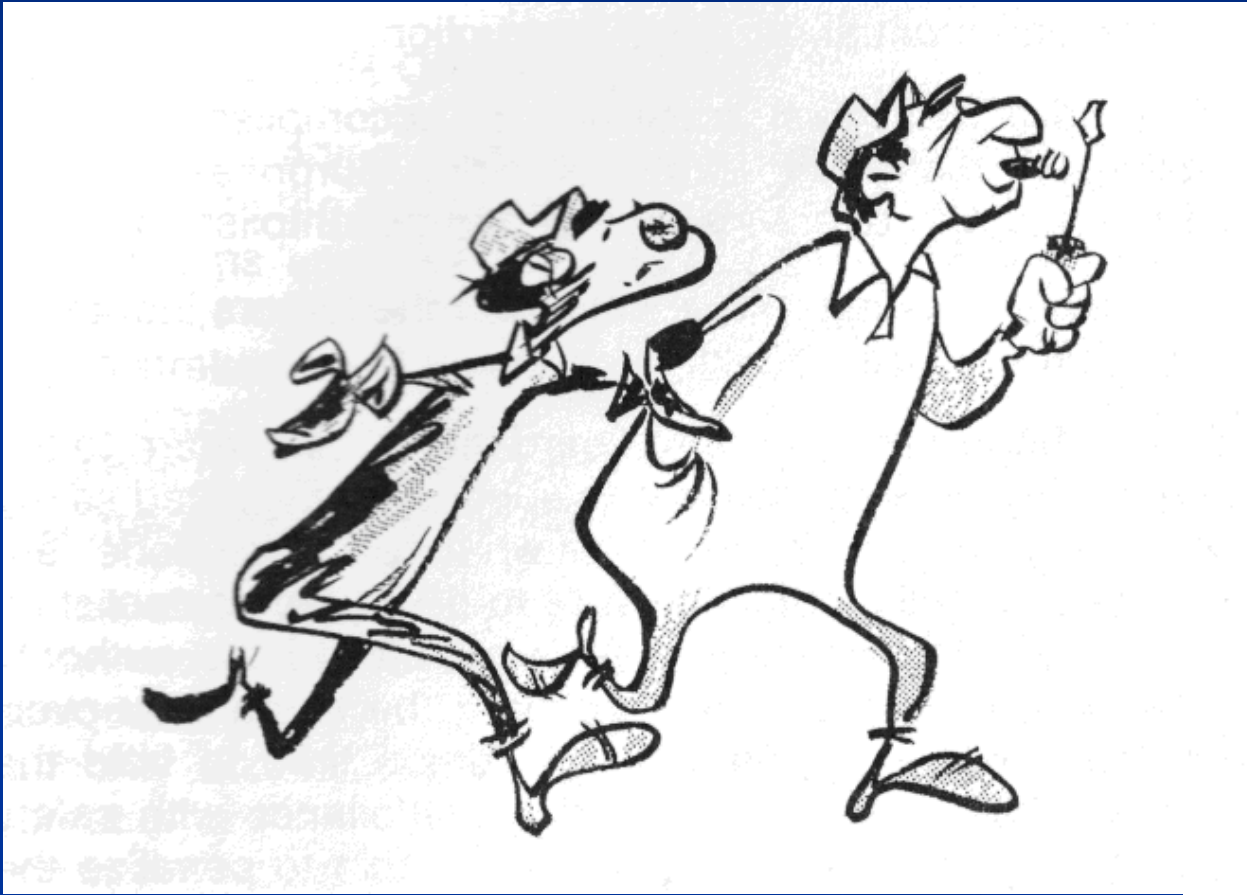
- Recent technological advances in tools for inspection and diagnosis have enabled even more accurate and effective equipment maintenance.



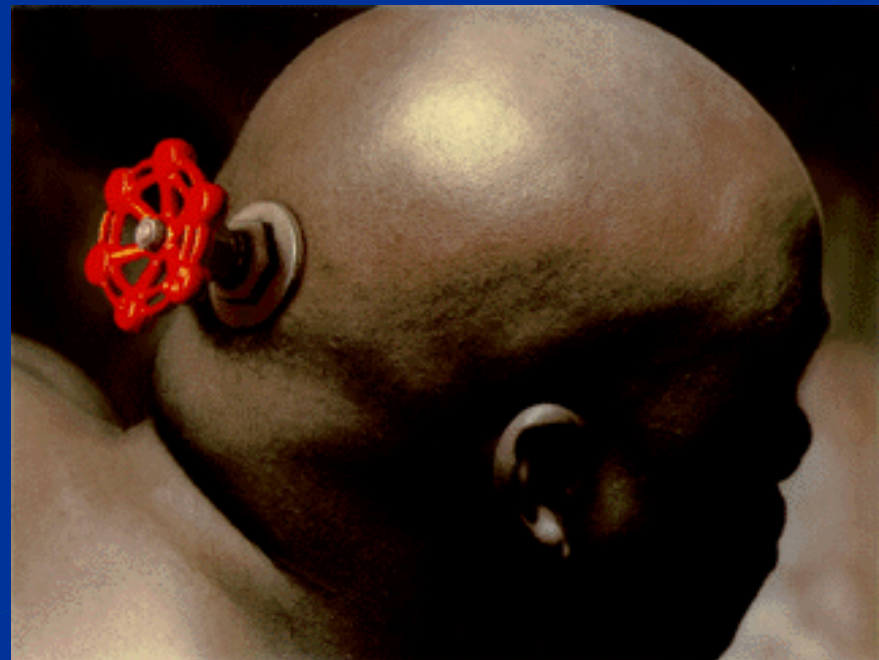
- Maintaining equipment and facilities in satisfactory operating condition by providing for systematic inspection, detection, and correction of incipient failures either before they occur or before they develop into major defects.



- Including tests, measurements, adjustments, and parts replacement.



# The Importance of Developing and Executing a Good Maintenance Plan (How do we get there)



# Preventive Maintenance has Three Distinct Components

- Identified Assets
- Standard Operating Procedures
- Scheduling of Maintenance Resources

# Inventory of the assets



- Inventory of all the buildings and the components with in the public works system. Put it into categories WWT, WT, WWC, WD
- Identify the components that need to be maintained and time line of performing the maintenance.



- Record all the maintenance on the equipment and how often it needs to be repaired
- Maintenance should be conducted on a daily, weekly and monthly basis.
- Thereby ensuring that the public is not put at a higher risk for serious injury or death due to equipment failures.



# Standard Operating Procedures

- Provides a daily plan for front-line supervisors
- Assists with repairs while coordinating staff in shop work and construction
- Provides procedures to implement and continue a PM program
- Provides procedures to plan, execute, monitor and control maintenance resources.
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# Scheduling of Maintenance Resources

- Provides for systematic collection of materials prior to planned jobs.
- Provides a communication link between maintenance and operations



- Reduces delays in waiting for men, material, tools after a job is in progress.

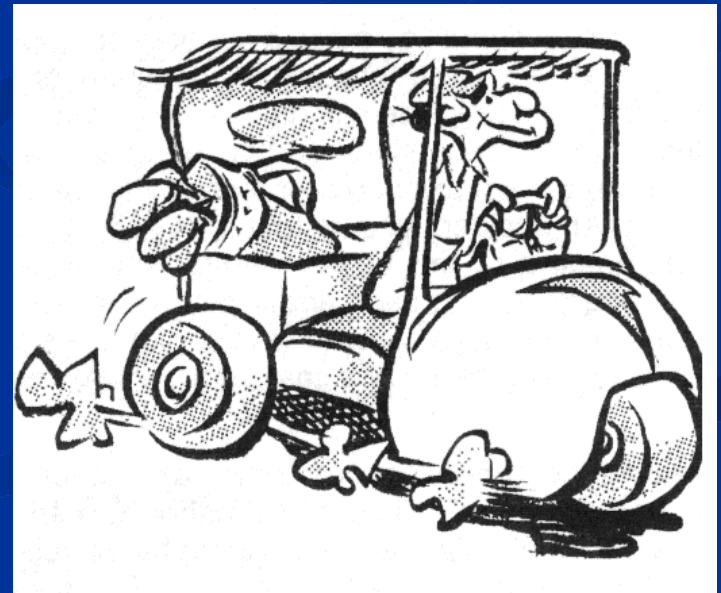


- Releases front-line foremen from major planning duties and allows them more time to supervise their crews.



# Some of the tools that can help execute a Maintenance plan

- Work Orders
- Daily Work Schedules (DWS)
- Daily Planning Meetings
- PM Task Lists
- Equipment History Files
- Backlog Control Boards



The tribal wisdom of the Blackfoot people, passed on from generation to generation, says: “When you discover that you are riding a dead horse, you should dismount.” However, in government, more advanced strategies are often employed, such as:

- Buy a stronger whip.
- Change riders.
- Appoint a committee to study the horse
- Arrange to visit other countries to see how other cultures ride dead horses
- Lower the standards to include dead horses.
- Reclassify the dead horse as living-impaired.

- Hire outside contractors to ride the dead horse
- Harness several dead horses together to increase speed.
- Provide additional funding and/or training to increase the dead horse's performance.
- Do a productivity study to see if lighter riders would improve the dead horse's performance

- Declare that as the dead horse does not have to be fed, costs less, and has lower overhead, it contributes substantially more to the bottom line of the economy than do other horses.
- . Rewrite the performance requirements for all horses.
- Promote the dead horse to a supervisory position

# Make it simple

- Preventive maintenance is conducted to keep equipment working and/or extend the life of the equipment.
- Corrective maintenance, sometimes called "repair", is conducted to get equipment working again.

# While preventive maintenance is generally considered to be worthwhile

- It is important to note that there are risks such as equipment failure or human error involved when performing PM, just as in any maintenance operation.
- PM is also sometimes past behavior to predict failures

# Summary preventive maintenance include

- Improved system reliability.
- Decreased cost of replacement.
- Decreased system downtime.
- Better spares inventory management.
- Long-term effects and cost comparisons usually favor preventive maintenance over performing maintenance actions only when the system fails.

The ideal preventive maintenance program would prevent all equipment failure before it occurs.



Questions ?

