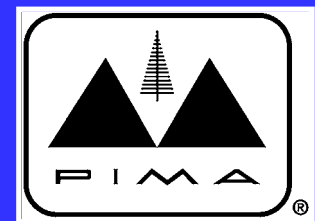


Manufacturing Reliability

&

Safety

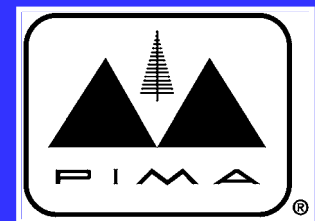


Improving Manufacturing Reliability & Safety - - -

There is a lot of common ground:

1. Work Environment

2. Behavior



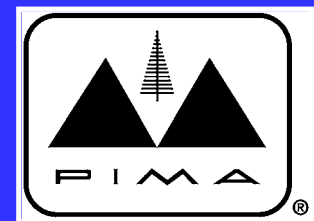
1. Work Environment

Safety

1. Equipment design that eliminates injury
2. Proactive approach to preventing and detecting hazardous conditions
3. Processes and procedures for eliminating "near miss" injuries

Reliability

1. Equipment design that eliminates failure
2. Proactive approach to preventing and detecting equipment failure
3. Processes and procedures for eliminating "near miss" equipment failures



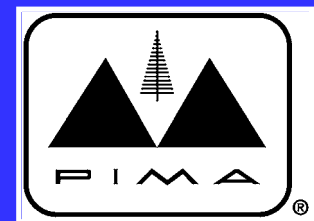
1. Work Environment (continued)

Safety

4. Processes and procedures for safe execution of work.
5. Leverage technology
6. Support from materials and contractors

Reliability

4. Processes and procedures for efficient/orderly execution of work.
5. Leverage technology
6. Support from materials and contractors



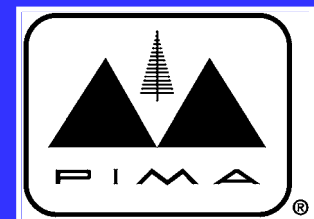
2. Behavior

Safety

1. Goal is a culture shift to have the organization embrace safety.
2. An effective communication plan is essential. The vision must be clear and simple.
3. Executive support is a must.

Reliability

1. Goal is a culture shift to have the organization embrace reliability.
2. An effective communication plan is essential. The vision must be clear and simple.
3. Executive support is a must.



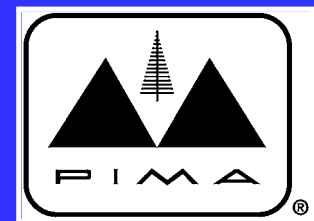
2. Behavior (continued)

Safety

4. Meaningful measures are essential.
5. Short term wins must be recognized.
6. True success comes when the workforce owns the issue of safety.

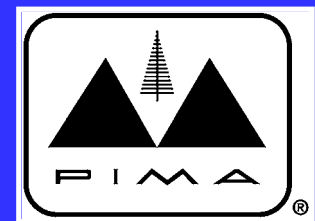
Reliability

4. Meaningful measures are essential.
5. Short term wins must be recognized.
6. True success comes when the workforce owns the issue of reliability.



Manufacturing Reliability & Safety

How do they support each other?



Reliability Focus

Bottom Line

Production
efficiency

Maintenance
cost

Parts Inventory

Run to demand
capability

Skills &
Training

Preventive
Predictive

Planning
Scheduling

Defect
Elimination

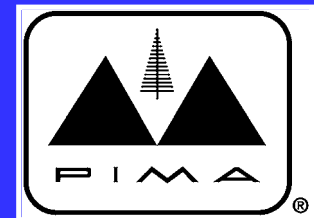
etc.

Safety

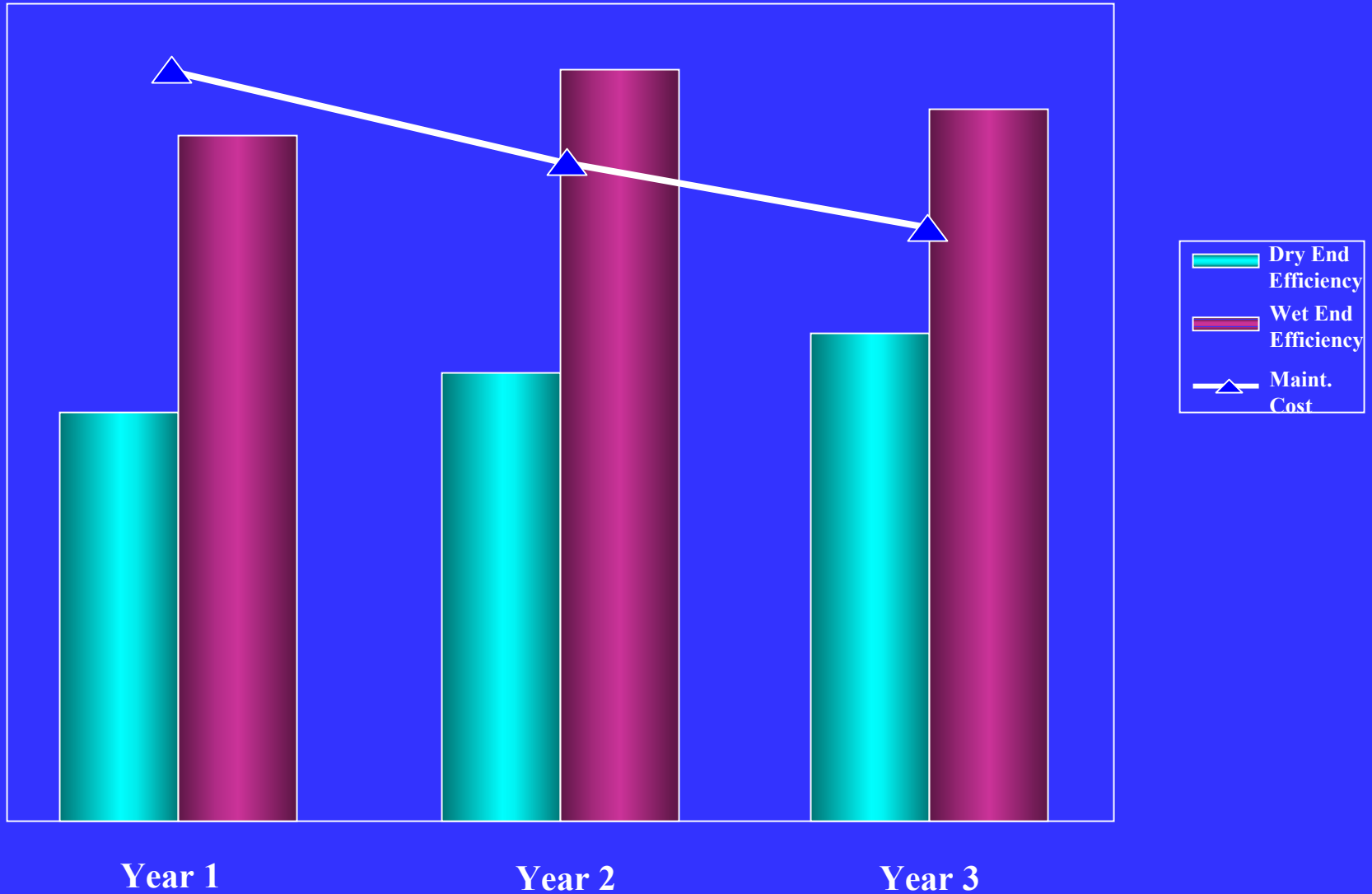
Reduce high risk
reactive maint.

Safety is part of
plan, execution,
follow-up

Reduce risk of
catastrophic
failure

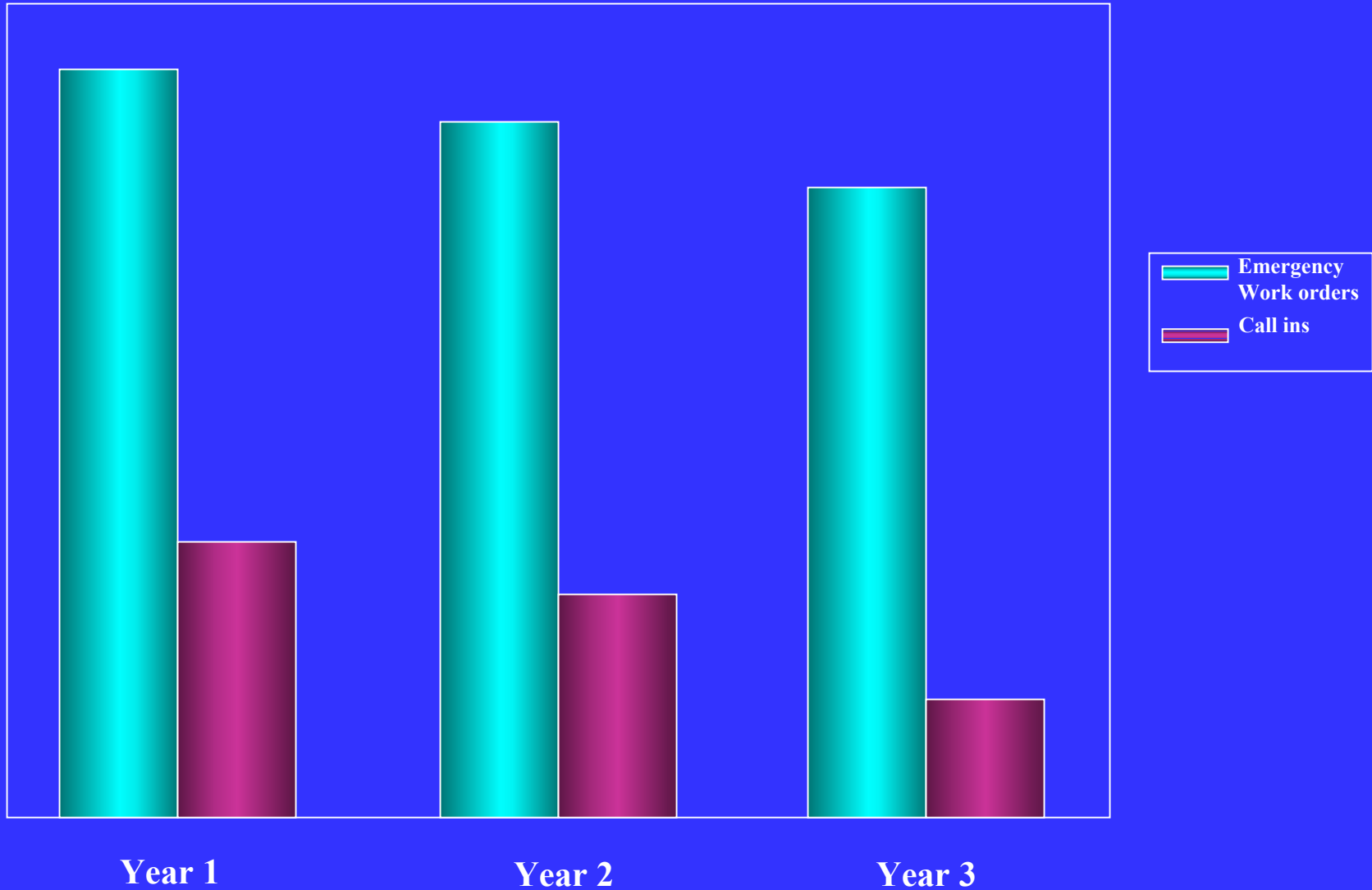


Efficiency/Maintenance Cost



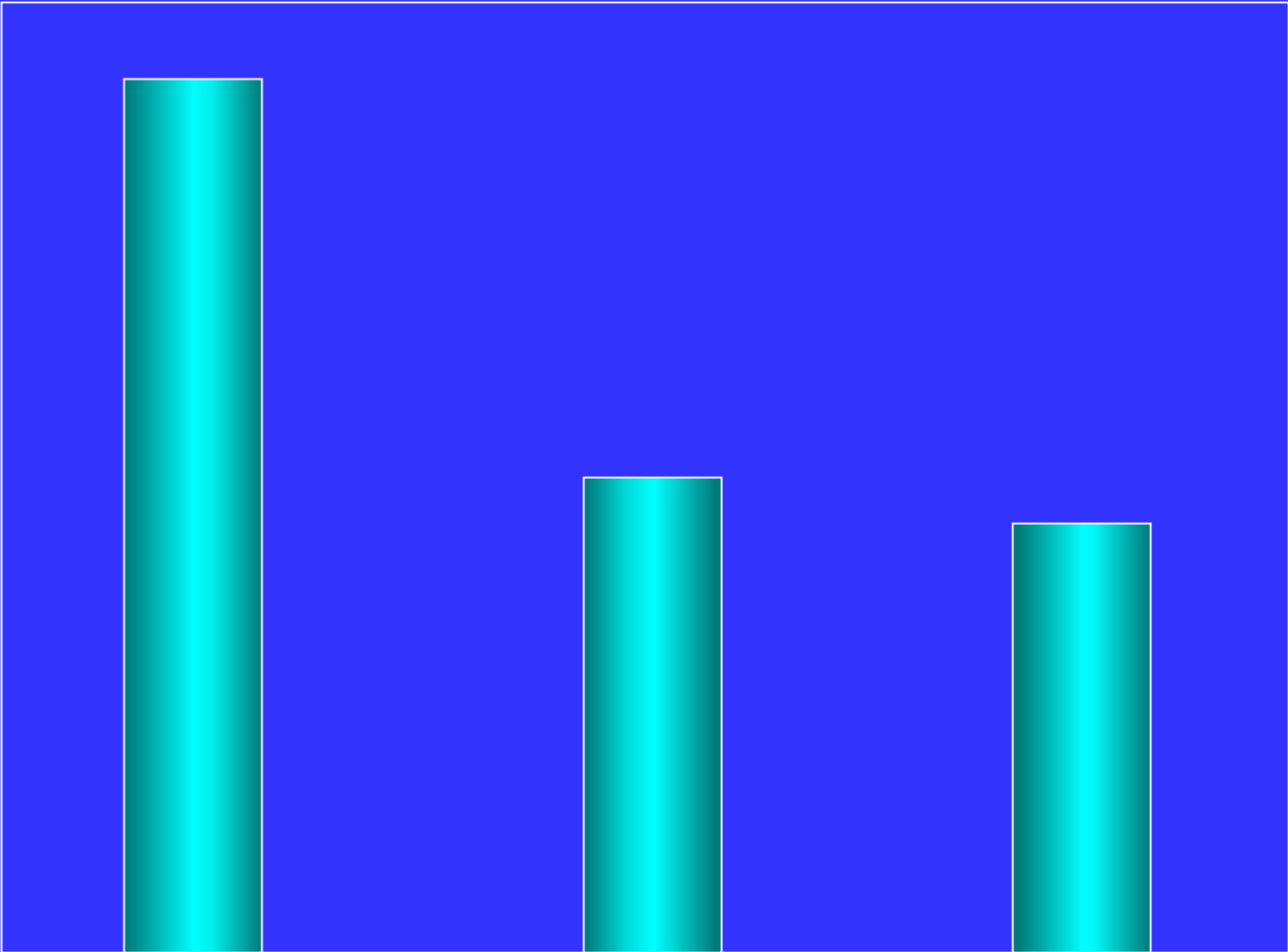
Based on actual results.
Not to scale

Emergency Work Orders & Call ins



Based on actual results
Not to scale

OSHA Incident Rate



Year 1

Year 2

Year 3

Based on actual results
Not to scale