

# PRACTICAL ALARM MANAGEMENT FOR ENGINEERS AND TECHNICIANS



## YOU WILL LEARN HOW TO:

- Implement an alarm system for your plant which works
- Design and create a consistent and effective alarm philosophy for your installation
- Recognise and deal with human problems in interfacing to alarm systems
- Apply the ergonomic design factors to a good alarm system
- Analyse alarm data for root causes of problems and to improve your operation
- Benchmark your alarm system performance
- Improve your plant reliability and operator effectiveness with a top notch alarm philosophy

## WHO SHOULD ATTEND:

- Operations Managers
- Production Engineers
- Plant Engineers
- Project Engineers
- IT Managers working with Networks
- Process Control Engineers and Technicians
- Electrical and Instrumentation Technicians
- Maintenance Engineers and Supervisors
- Instrumentation and Control System Engineers
- Process Control Designers and Systems Engineers
- Instrumentation Technologists and Engineers
- Anyone involved in the installation, design and support of alarm systems
- Systems Engineers
- Process Engineers
- Electrical Engineers
- Design Engineers



## The Workshop

It is 6 o'clock in the evening, after a hot summer's afternoon and the shift has just changed over. The control room has been rather quiet through the day with the odd alarm punctuating the serene silence. In fact this plant has been a truly contented baby with no major problems for over 18 months since it was commissioned; apart from the inevitable mechanical wear and tear associated with a new plant.

Suddenly there is a explosive roar outside and the control room door bursts open with the shift foreman dripping with sweat shouting, "We've just lost Unit 3, I'm not sure what is happening...can you tell me what is going on". Within seconds the alarms start pouring in. The operator starts to systematically work his way through the overview displays trying to identify what is going on. But he is slowly overwhelmed by the sheer number of alarms which are flitting across the screen so fast that he cannot even read them. And Unit 3 is now starting to lurch into a dangerous state with pressures, flows and temperatures well outside acceptable operating ranges. So it looks like an immediate shutdown of the plant is going to be required with some very unhappy customers over the next few weeks.

Was there any other approach possible?

Hopefully this is not the scenario on your plant; but could this just perhaps happen? Does your alarm system ensure the operator stays unerringly focussed on the source of the problem or is there a possibility that he could get overwhelmed and distracted by the number of alarms where many of them may not be relevant to the immediate problem?

It is important that throughout the plant a consistent philosophy is adopted for alarms and that your operators are not distracted from the main ball game of operating the plant.

This workshop will give you the necessary information to ensure that your alarm system is well designed and provide your operators with the best picture of the operations of the plant. The workshop focuses on simple and practical information for personnel ranging from operators all the way up to supervisors, engineers and managers.

There are nine practical exercises to ensure that you maximise your understanding of the material in the course.

## The Program

### DAY ONE

#### INTRODUCTION

- Safety Examples of Systems
- Why Alarm systems need to be managed

*Practical Exercise*

#### FUNDAMENTAL PRINCIPLES OF ALARM SYSTEM MANAGEMENT

- Philosophies of Alarm Management

*Practical Exercise*

#### DESIGN OVERVIEW

- Human and Ergonomic Factors
- Structure of good Alarm System
- Safety Integrity Level (SIL)

*Practical Exercise*

#### DEFINITION OF STRATEGY

*Practical Exercise*

#### MEASUREMENT OF THE ALARMS

- Audit the current alarm status

*Practical Exercise*

#### ANALYSE THE ALARMS

*Practical Exercise*

### DAY ONE continued

#### DESIGN OF ALARM SYSTEM

*Practical Exercise*

#### MEASUREMENT OF PERFORMANCE

*Practical Exercise*

#### MANAGEMENT OF IMPROVEMENT PROGRAM

- Alarm Review
- Elimination of spurious alarms
- Process Alarms
- Intermittent and fleeting alarms
- Control of Modifications

*Practical Exercise*

#### HAZOPS AND ALARMS

- Establish a strategy

*Practical Exercise*

#### TIE IT ALL TOGETHER

- The way forward
- Summary of key concepts

## Workshop Objectives

At the end of this workshop participants will be able to:

- Implement an alarm system for your plant which works
- Design and create a consistent and effective alarm philosophy for your installation
- Recognise and deal with human problems in interfacing to alarm systems
- Apply the ergonomic design factors to a good alarm system
- Analyse alarm data for root causes of problems and to improve your operation
- Benchmark your alarm system performance
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## Practical Sessions

Nine Practical Sessions focussing on the design of Alarm Systems throughout the two days will ensure that you can apply the information from the course to your system.

