

# A philosophy for your alarms.

## Introduction.

Do you have an Alarm Philosophy document which defines the management of alarms at your site? If you already have an Alarm Philosophy document; is it current and does it comply with the requirements mandated in the alarm management standards?

Do you have clearly defined roles and responsibilities for those personnel involved in the governance of alarms within your business?

Do you have a clear methodology for identifying, designing and prioritising the alarms configured in your process control system?

If the answer to one or more of these basic questions is no, then you have some work to do.

This whitepaper has been written to help you understand what a clear and comprehensive Alarm Philosophy document is, (as described in the various standards and guidelines on alarm management, IEC-62682-2014<sup>1</sup>, ISA 18.2-2016<sup>2</sup> and EEMUA 191<sup>3</sup>); why you should have an Alarm Philosophy, and how to set about creating one.

## What is an Alarm Philosophy?

If we refer to the alarm management standard IEC 62682, we find the definition of an Alarm Philosophy as a:

***“document that establishes the basic definitions, principles, and processes to design, implement, and maintain an alarm system”.***

In reality, an Alarm Philosophy document is fundamental to the implementation of an effective system of alarm management.

It is a document that defines the governance of alarms at your site, and is the starting point for the design and implementation of new alarm systems and any improvement initiatives associated with mature, existing systems.

It covers all phases of the alarm management lifecycle (as defined in the current alarm management standards - Figure 1); from identification, design and implementation, though to operation, maintenance and ultimately, decommissioning.

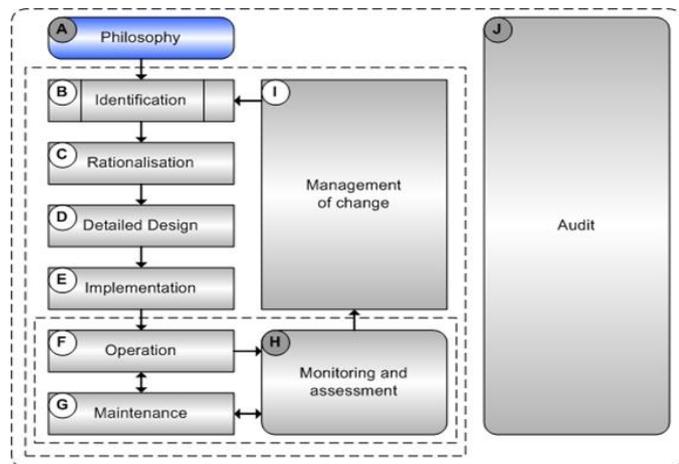


Figure 1 - Alarm Management Lifecycle

Unfortunately, there is no such thing as a generic Alarm Philosophy document which you can get off the shelf. The structure and recommended topics required for an Alarm Philosophy document are described within the standards and guidelines, but the document itself is individual to every site as the detailed content needs to be provided by your company; because it contains information, criteria, definitions, principles and responsibilities as defined in your company, along with design information relevant to the specific alarm systems in use on your site.

## Why do you need a philosophy for your alarms?

- Regulators expect it; it is a target during any regulatory audit

Throughout the European Union, if your plant is governed by the provisions of the SEVESO III<sup>4</sup> directive (implemented in the UK through the COMAH<sup>5</sup> 2015 regulations), then alarm management is a requirement. Even if this does not apply to your site, regulators specific to your industry sector such as environmental agencies, FDA<sup>6</sup>, DWI<sup>7</sup> etc., will expect that alarms are managed appropriately in order to minimise potential breaches of your license to operate.

Even if you do not have to comply with these regulations, should you become the focus of regulatory attention, for example following an incident which merits investigation, and you do not have a robust system of governance of your alarms underpinned by an alarm philosophy, then enforcement and ultimately prosecution are very real possibilities.

- It provides a consistent, structured approach to the governance of alarms on your site

Unless you have an Alarm Philosophy where roles and responsibilities and the processes and procedures to monitor, measure, review, report on, design and improve alarms are defined, your alarm improvement program will fail.

## **Creating an Alarm Philosophy document.**

Generating an Alarm Philosophy document can be a time consuming task, especially if you have no experience in doing so. Quite apart from the time taken to write the document and submit it for review cycles and modifications, you will also need to take the time to read, interpret and understand the relevant standards and guidelines before you start.

Some companies offer Alarm Philosophy templates, which are in practice no more than outline documents containing topic placeholders. They may contain some standard text phrases and some guidelines on what each section should include, but the bulk of the document will need to be completed by you, as only you can provide the detailed information required that is specific and relevant to your plant, process and alarm system.

If you wish to have an Alarm Philosophy which complies with the alarm management standards, it is advisable to engage an experienced alarm management consultant to author the document on your behalf. However, even if you choose this route, you and a number of your colleagues will still have to commit to a few days involvement at site to assist in the generation of the document.

The best method of creating an Alarm Philosophy is through a multidisciplinary team approach, with an experienced consultant / facilitator and a small group of responsible site personnel. The sessions for document creation can take place over a small number of days in either meetings or an interactive workshop format where the precise wording and content of each section can be agreed as each topic is discussed and documented. The experienced consultant can give guidance on what should be included in each topic and facilitate the document creation with site personnel providing the detail.

Don't forget, you will need input from staff with an understanding of your regulatory commitments that have access to any relevant permits or safety reports, and it is essential to have someone who is knowledgeable about the functionality and configuration of your control system.

One thing to remember; whilst it is important that your Alarm Philosophy is a comprehensive document, it doesn't need to contain the detail of every relevant procedure in use at your site. If for example, you have a management of change procedure which is appropriate for managing change to alarms, simply reference it from within the document and don't add all the content. Quite apart from turning your Alarm Philosophy from a useful document into one of potentially, hundreds of pages, it will mean you have to maintain the relevant procedure in two places, in the original procedure, and the copy content within your Alarm Philosophy, which is not good practice.

Following the end of the meetings / workshop sessions, there may be a requirement for a small amount of tidy-up work to rephrase some poorly worded statements, after which the document can be submitted as a draft for final review by the wider population.

However, creating the document is only the beginning, as it must be considered a living document which should be regularly reviewed and updated as processes, procedures and even alarm systems are updated or changed.

Once your Alarm Philosophy has been fully reviewed, agreed and 'issued', it is important that it is made available not only to your operations team, but also to engineering & maintenance teams, project personnel, vendors and third party system integrators.

It is also essential that you robustly enforce the processes, procedures and guidelines contained within your Alarm Philosophy; otherwise, your alarm improvement efforts will fail.

## **Alarm Philosophy document content.**

In order to be able to demonstrate compliance with the alarm management standards, it is essential that your Alarm Philosophy document addresses a number of topics. Section 6 of IEC 62682 details the topics which should be included in your document, some of which are required, and some recommended.

The requirements for the content of each of the required and recommended topics are included in individual clauses within section 6 of the standard, so are not described in this white paper.

While creating the Alarm Philosophy document, it can sometimes be difficult to provide narrative for the required or recommended topics especially if they are not appropriate to your site. The pragmatic approach is to discuss the topic and if the general conclusion is “this topic does not apply to us”, simply include some text in the Alarm Philosophy document which indicates that you have thought about it, but found that it is not applicable. Include a brief statement of your reasoning.

However, it is possible that the required and recommended topics may not cover all the issues on your plant. Again, the pragmatic approach is to add extra sections to the Alarm Philosophy document, for example; how to handle safety system information, maintenance override switches etc.

Also, with regard to your license to operate, there may be specific regulatory requirements with which you must comply, perhaps conditions of your environmental permit for example. For pharmaceutical plants, you may be required to test specific alarms prior to the beginning of any new product campaigns.

All these issues must be considered and where necessary, included in the Alarm Philosophy document.

## **Benefits of an Alarm Philosophy document.**

- It provides a consistent approach to alarm design which will minimise alarm proliferation  
If you have no Alarm Philosophy to define how alarms are designed, installed and managed, you will be reliant on vendors and third party or in-house software providers to determine what alarms the operator has to deal with. Without detailed guidelines to follow, alarms will be copied or generated in a variety of different ways ‘because we’ve always done it that way’, without thought to their relevance or importance. Your operator will be inundated with unnecessary alarms.
- It will improve the regulatory performance, up time and productivity of your plant  
If you specify the design of alarms and alarm systems in your Alarm Philosophy and robustly ensure your guidelines are followed, your operators will have significantly fewer unnecessary alarms to distract them.  
Your operators will be able to focus on and respond to genuine alarms, including those mitigating regulatory consent levels which may otherwise have been missed, potentially leading to costly breaches of consent.  
The site will experience fewer process interruptions or trips, and instead of simply responding to alarms, your operators will have more time to optimise the performance of your plant and increase its efficiency, productivity and product quality. Ultimately, this will save you money.

## **Finally.**

If you are serious about improving alarms and the management of alarms at your site, or within your business; then you cannot do so without first creating an Alarm Philosophy which complies with the relevant standards.

As the foundation for any successful alarm improvement initiative, if you get your Alarm Philosophy right, then your alarm management journey will be a successful one.

## **References.**

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<sup>1</sup> IEC 62682 edition 1.0 2014-10 – “Management of Alarm Systems for the Process Industries”

<sup>2</sup> ANSI/ISA 18.2-2016 – “Management of Alarm Systems for the Process Industries”

<sup>3</sup> EEMUA 191 3<sup>rd</sup> edition – “Alarm Systems - A Guide to Design, Management and Procurement”

<sup>4</sup> SEVESO III – EU directive on the control of major accident hazards involving dangerous substances

<sup>5</sup> COMAH – Control Of Major Accident Hazards

<sup>6</sup> FDA – Food and Drugs Administration

<sup>7</sup> DWI – Drinking Water Inspectorate

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