Pipeline SCADA Alarm Management

Pipeline Segment

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Contents

Page

1 Scope . . . 1
1.1 Purpose . . . 1
1.2 Scope Limitations . . . 1

2 Normative References . . . 1

3 Definitions and Abbreviations . . . 2
3.1 Definitions . . . 2
3.2 Abbreviations . . . 5

4 Alarm Definition and Determination . . . 5
4.1 General Considerations . . . 5
4.2 Alarm Determination . . . 6
4.3 Purpose and Use of Alarm Priority . . . 6
4.4 Diagnostic Alarm Priority . . . 7
4.5 Safety-related Alarms . . . 7
4.6 Other Uses of the Alarm System . . . 8

5 Alarm Philosophy . . . 8
5.1 Alarm Philosophy Purpose . . . 8
5.2 Alarm Philosophy Use and Contents . . . 8

6 Alarm Documentation and Rationalization . . . 10
6.1 General . . . 10
6.2 Documentation & Rationalization Process . . . 10
6.3 Documentation & Rationalization Methodology . . . 10
6.4 Documentation & Rationalization Preparation . . . 11
6.5 Determination and Assignment of Alarm Priority . . . 12
6.6 Determination of Alarm Setpoint . . . 12
6.7 Staged Approaches to Alarm Rationalization . . . 13
6.8 Recommended Storage of D&R Information . . . 13

7 SCADA System Alarm Functionality and Alarm Design . . . 13
7.1 General . . . 13
7.2 Point Types and Alarm Types . . . 13
7.3 Alarm Priority . . . 15
7.4 Alarm Settings and Alarm Occurrences . . . 15
7.5 Other Alarm-related Electronic Records . . . 16
7.6 Alarm Logs/Alarm Summaries . . . 16
7.7 Event Logs/Event Summaries . . . 16
7.8 Alarm Summary Display . . . 17
7.9 Alarm Deadband . . . 17
7.10 Alarm On-Delay and Off-Delay . . . 17
7.11 Alarm Suppression and Alarm Shelving . . . 17
7.12 Leak or Possible Leak Alarms . . . 18
7.13 Alarm System Reliability . . . 18
7.14 Defined Alarm Design Cases . . . 19

8 Roles and Responsibilities . . . 20
8.1 Overview and Introduction . . . 20
8.2 Management . . . 20
8.3 Technical . . . 20

Contents

Page

8.4 Operations . . . 20

9 Alarm Handling . . . 21
9.1 General . . . 21
9.2 Nuisance Alarms . . . 21
9.3 Alarm Shelving . . . 21
9.4 Designed Alarm Suppression . . . 22
9.5 State-based or State-dependent Alarms . . . 22
9.6 Alarm Flood Suppression . . . 22
9.7 Alarm Audit and Enforcement . . . 23
9.8 Special-purpose Priorities and Alarm Routing . . . 23
9.9 Controller-adjustable Alarms . . . 23
9.10 Controller Alert Systems . . . 24

10 Alarm Audits and Performance Monitoring . . . 25
10.1 Overview and Introduction . . . 25
10.2 Audits of Managerial and Work Practices . . . 25
10.3 Alarm System Performance Metrics . . . 26
10.4 Alarm System Key Performance Indicators . . . 26
10.5 Reporting of Alarm System Analyses . . . 28
10.6 Regulatory Requirements for Alarm System Monitoring . . . 29

11 Management of Change . . . 29
11.1 Purpose and Use . . . 29
11.2 Testing . . . 29
11.3 Documentation . . . 30
11.4 Notification and Training . . . 30
11.5 Emergency MOCs . . . 30
11.6 Temporary MOCs . . . 30
11.7 Regulatory Requirements for Change Management . . . 30

Annex A (informative) **Alarm Philosophy Document Example Table of Contents** . . . 31

Annex B (informative) **Determination of Alarm Priority** . . . 34

Annex C (informative) **Priority Distribution for Alarm Configuration and Occurrence** . . . 38

Annex D (informative) **Summary of Alarm System Key Performance Indicators (KPIs)** . . . 39

Bibliography . . . 41

Tables
B-1 EXAMPLE Areas of Impact and Severity of Consequences Grid . . . 35
B-2 EXAMPLE Maximum Time Available for Response and Correction Grid . . . 36
B-3 EXAMPLE Severity of Consequences and Time to Respond Grid for Alarm Priority Determination . . . 36
C-1 Recommended Priority Distribution for Alarm Configuration and Occurrence . . . 38
D-1 Alarm KPI Summary . . . 40

Introduction

This publication was created by an API subcommittee. The members of this subcommittee were predominantly operators of liquids pipelines, but included participation from operators of gas pipelines, as well as members from the alarm management and control systems communities and U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration representatives.

With the technological advances of SCADA systems within the pipeline industry over the past two decades, it has become relatively simple to supply pipeline controllers with a wealth of information regarding the pipeline systems that they are operating. As the amount of information available to a controller increases, the importance of having a program in place to manage this information also increases. Alarm information should be presented to the controller in a manner that allows for easy identification and with clear expectations as to the response required.

Pipeline SCADA Alarm Management

1 Scope

1.1 Purpose

This document is intended to provide pipeline operators with recommended industry practices in the development, implementation, and maintenance of an alarm management program. It provides guidance on elements that include, but are not limited to, alarm definition, alarm philosophy, documentation, management of change, and auditing.

1.2 Scope Limitations

This document is not intended to be a step by step set of instructions on how to build an alarm management system. Each pipeline operator has a unique operating philosophy and will therefore have a unique alarm philosophy as well. This document is intended to outline key elements that should be considered when building an alarm management system.

SCADA systems and similar technologies used within the pipeline industry vary in their alarm related capabilities. There are also many different software systems available to aide in alarm management. It is the responsibility of the operator to determine the best method to achieve their alarm management goals.

This document uses industry best practices to help illustrate aspects of alarm management. The scope is intended to be broad. There are several publications and standards listed in Section 2 (Normative References) and the Bibliography that provide greater detail on the various elements of alarm management. Operators are encouraged to consult these publications.

2 Normative References

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

API Recommended Practice 1165, *Recommended Practice for Pipeline SCADA Displays*

ANSI/ISA [1] 18.2-2009, *Management of Alarm Systems for the Process Industries*

49 *CFR* Part 192 [2], *Transportation of Natural Gas and Other Gas by Pipeline: Minimum Federal Safety Standards*

49 *CFR* Part 195, *Transportation of Hazardous Liquids by Pipeline*

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1 The Instrumentation, Systems, and Automation Society, 67 Alexander Drive, Research Triangle Park, North Carolina, 22709, www.isa.org

2 U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration, East Building, 2nd Floor, 1200 New Jersey Ave., SE, Washington, DC 20590, www.phmsa.dot.gov/.