Pipeline SCADA Alarm Management

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Introduction

This publication was created by an API subcommittee. The members of this subcommittee were predominantly pipeline operators of liquid pipelines, but included participation from pipeline 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 clear expectations as to the response required.

Pipeline SCADA Alarm Management

1 Scope

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, philosophy, documentation, management of change, and auditing.

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 for review when building an alarm management system.

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

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