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Issues for security risk assessment in the process industries

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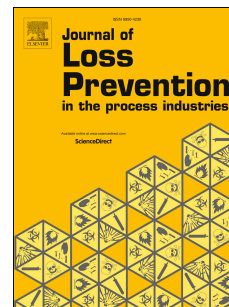
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## ISSUES FOR SECURITY RISK ASSESSMENT IN THE PROCESS INDUSTRIES

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### Abstract

The safety risks of accidents in process plants usually are managed with some form of risk assessment. Similarly, the security risks of malevents, that is deliberate actions to cause harm, also are managed with risk assessment. However, security risks differ in various ways from safety risks and security risk assessment poses special challenges. Current methods for security risk assessment in the process industries use approaches that are seriously flawed. This includes methods incorporated into several industry standards that employ risk scoring methods such as risk matrices. Issues that affect security risk assessment are identified and discussed in this article in order to provide a set of criteria that can be used to judge the adequacy of security risk assessment methods. A number of recommendations are made to address the issues and several questions are posed for future study.

**Key words:** Security risk assessment; security vulnerability analysis; threat event; threat scenario; risk scoring; risk matrices.

### 1.0 Introduction

Several recent industry standards address the performance of security risk assessment in the process industries. The second edition of the functional safety standard on safety instrumented systems (SISs), IEC 61511, issued in 2016, added a

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