

# Hvad rører sig internationalt?



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# Fjernstyrede industrivirksomheder

- Produktionsanlæg, som overvåges fra et kontrolrum med anden geografisk placering. Måske endda i et andet land.
- Ingen personer på produktionsanlægget uden for normal arbejdstid.



# Fjernstyrede industrivirksomheder

Case fra DK: Luftgasfabrik fjernstyret fra Finland

Case fra Finland: Brintfremstilling fra metan fjernstyret fra Tyskland

- Myndighederne forlangte 15 min beredskab
- Virksomheden klagede, men blev afvist ved en domstol.
- Virksomheden valgte at hyre 3 operatører til 24/7 vagt. Kunne også have valgt en løsning med et eksternt firma.

# Fjernstyrede industrivirksomheder

Sikkerhedsmæssige overvejelser:

- Hvilke risici kan håndteres på afstand og hvilke kan ikke?
- Hvilke krav skal stilles, fx mht. grad af automatisering og nødsystemer i tilfælde af strømudfald eller brud på kommunikationslinjen?
- Hvor mange og hvor komplekse anlæg kan det samme kontrolcenter overvåge på en gang?
- Hvordan fører man tilsyn med et kontrolcenter i udlandet?
- Hvor hurtigt skal en medarbejder kunne være fysisk eller telefonisk til rådighed?
- Hvad er muligheden for at styre anlægget manuelt eller reagere på unormal drift?
- Cyberangreb?
- ...

# Common Inspection Criteria

European Commission

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Security Technology Assessment Unit

SEVESO COMMON INSPECTION SERIES CRITERIA

## Safety Instrumented Functions

This publication of the European community on Common Inspection Criteria is intended to share knowledge about technical measures and enforcement practices related to major hazard control and implementation of the Seveso II Directive. The criteria were developed by Seveso inspectors to aid in dissemination of good enforcement and risk management practices for the control of major industrial hazards in Europe and elsewhere.

This particular issue highlights a number of issues that are critical for successfully reducing risks using safety instrumented functions. Note that this document is not intended as a technical standard nor as a summary or replacement of any existing standards on the matter.

### Definition

A safety instrumented function (SIF) is a safety measure that senses a potentially hazardous condition and automatically performs an action to return the process to a safe condition. A SIF is implemented as a functional combination of one or more sensors, a logic solver and one or more final elements. A SIF will typically interrupt a chain of events, starting with a process upset and leading to a potentially hazardous situation. For a given SIF, this chain of events is referred to as the SIF-scenario (although the SIF in question might not be the only safety measure featuring in this scenario). A typical example of a SIF is a high level protection comprising one or more level detectors, a programmable logic controller (PLC) and one or more valves in the feed line that will be closed when the liquid level reaches the trip point. Another example might be a high pressure protection on a reactor that initiates an action to stop the reaction when temperature in the reactor reaches the trip point. This action can be closing a valve or stopping a pump in the feed line, opening a valve in an emergency dump line, opening a valve to inject a killing agent to stop the reaction.

The technical details of the implementation of the SIF should also be properly documented, including an identification of all of its components and a description of its functional logic (trip point, voting logic for sensors and final elements, etc.).

### Independence

Each SIF should use components (sensors, logic solvers and final elements) whose failure will not initiate the SIF-scenario. In most cases this means that a SIF should have components that are used for safety purposes only (and not for process control). Sharing components between process control systems and SIFs can lead to a situation where the control and safety functions are lost simultaneously by a single fault in a common component.

If for a given scenario several independent SIFs are required to reduce the likelihood of its occurrence, then these SIFs should not share sensors or final elements.

Accident Hazards Bureau Technology Assessment Unit

SERIES CRITERIA

## System

Inspection Criteria is intended to describe best practices related to major hazard control. The criteria were developed by Seveso inspectors to aid in dissemination of good enforcement and risk management practices for the control of major industrial hazards in Europe and elsewhere.

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The staff responsible for the execution of the SIF should also be properly documented, including an identification of all of its components and a description of its functional logic (trip point, voting logic for sensors and final elements, etc.).

In general, the preventive action to be taken during execution of the SIF should be completed either following the completion of the SIF-scenario or, in complex works, following a joint on-site inspection, conducted by the supervisor responsible for execution of work.

### Permits-to-work

A system of permits-to-work cannot be used in isolation but it is an essential part of the overall risk management system realized through specific

Audit procedures play an important role in the safety management system. Regular conditions inspections and observations carried out by line supervisors as part of their active performance activities. The relationship of audit in the system and system review activities is

Identification and evaluation of major hazards

SEVESO COMMON INSPECTION SERIES CRITERIA

UNION, 2014

# Common Inspection Criteria

- Samarbejde mellem risikomyndigheder i EU (TWG2)
- Korte vejledninger til tilsynsmyndigheder (og i DK også til myndigheder i godkendelsesprocessen)
- Hver vejledning handler om et meget specifikt emne, fx "*Safety Instrumented Functions*".
- Vægten er lagt på best practice på virksomheder. Ikke så meget på "wiki-spørgsmål" (hvad forstår man ved...).
- P.t. findes 4. Flere er på vej.
- <https://minerva.jrc.ec.europa.eu/en/minerva>  
-> Publications

# OECD

Chemical accident prevention, preparedness and response:

- Rapporter og vejledninger, fx
  - Ageing of Hazardous Installations
  - Safety Performance Indicators
- <http://www.oecd.org/chemicalsafety/chemical-accidents/>



# ARIA-databasen

De franske myndigheders database over uheld:

<https://www.aria.developpement-durable.gouv.fr/?lang=en>

- Kræver login (gratis).
- P.t. ca. 46.000 uheld registreret (primært industri og transport).





# Spørgsmål?

