

Use Case 7: Alarm Management

Summary:

Remote signals and measurement threshold overruns are events which can be defined to be further processed as alarms. To minimize operator saturation, events are split into urgent, less urgent etc. events. To simplify more complex network-conditions, different alarms and status-information are synoptized to form a single item of information.

This procedure describes which activities are performed by an operator in the control room when the existence of one or more unacknowledged alarms is presented by the system. The operator has to acknowledge alarms which are currently active in the alarm lists.

Actor(s):

Name	Role description
Operator in the control room	identifies and resolves the problem himself or advises the field operative and acknowledges the alarm.
Field operative	identifies and/or resolves the problem, if necessary

Participating Systems:

System	Services or information provided
Network Operation	<ul style="list-style-type: none"> Network operation monitoring (alarm supervision, supervision of operative locations and assigned orders, logging) Network control (Remote control and Local control through field operators) Fault management (fault occurrence diagnostic, fault localization analysis) Dynamic data management (data acquired automatically or through operation, e.g. field operators data)
Operational Planning and Optimization	<ul style="list-style-type: none"> Switching action scheduling/operation work scheduling (dispatching of field crews)

Pre-conditions:

The SCADA System is in operation. The operator is logged in the system. An alarm of some kind occurs in the control center. Facilities to acknowledge alarms are included in the system. The field operative is ready and equipped.

Assumptions / Design Considerations:

None.

Normal Sequence:

Use Case Step	Description
Alarm appears	Alarms can have different priority levels and are accordingly displayed.
Display alarm list	The operator accesses the current alarm list.
Acknowledge alarm	The operator acknowledges the alarm. This action is logged.
Analyze the cause	An alarm can have various reasons, it can come from: a RTU device, an error in the communications lines, a problem with servers, an external indication, an overloaded element and even from an

	illegal operator action. This information can indicate that an operator procedure must be started, or it can simplify visualisation of a complex feeding situation.
Trigger a procedure (crew assignment inclusive)	After determine the cause, the operator starts the specific management procedures to resolve the problem. The operator assigns a field operative(s) to that problem.
Confirmation from field operative	The operator receives confirmation about the solution of problem from the field operative(s).
Clear the alarm	The operator clears the alarm after making sure that the problem is resolved or being resolved.
Close alarm list	The operator closes the alarm list.

Exceptions / Alternate Sequences:

Alternate sequence 1

Display alarm list	The operator accesses the current alarm list.
Close alarm list	Some alarms can disappear if the problem has disappeared by itself (without intervention of the operator). In that case the operator closes the alarm list.

Alternate sequence 2

Analyze the cause	An alarm can have various reasons, it can come from: a RTU device, an error in the communications lines, a problem with servers, an external indication, an overloaded element and even from an illegal operator action. This information can indicate that an operator procedure must be started, or it can simplify visualization of a complex feeding situation.
Clear the alarm	It is not necessary to trigger incident management procedures. The operator clears the alarm.
Close alarm list	The operator closes the alarm list.

Alternate sequence 3

Trigger a procedure (without crew assignment)	After determine the cause, the operator starts the specific management procedures to resolve the problem.
Clear the alarm	The operator clears the alarm after making sure that the problem is resolved or being resolved.
Close alarm list	The operator closes the alarm list.

Post-conditions:

An alarm is removed from system.