GENERAL FACTSHEET

Vulnerability studies

Ensuring your process control and safety systems are fully capable of maintaining reliable production over their required plant life to meet your current and future business needs.

Overview
Vulnerability studies specifically address failures and safeguard the performance of ABB’s control and safety systems, such as Ability™ System 800xA, ABB Ability Symphony Plus, Freelance DCS, Safeguard, Mod300 and Infi90 based systems.

Established methodology
Vulnerability studies follow a dedicated methodology to identify business continuity risks and appropriate action recommendations to mitigate any vulnerabilities and achieve optimal performance outcomes.

Specific target areas we review include system issues and unexpected trips / shutdowns (System Technical Bulletins, System Loading), obsolescence and spare parts management, maintenance strategy (competency analysis) and system configuration and architecture. Cyber security is a key area in the latter.

Risk categorization and recommendations
Issues we identify in a study are plotted into a criticality matrix showing what issues are low, medium and high risk. The higher the risk the larger the impact on shutdowns and cost.

<table>
<thead>
<tr>
<th>Risk</th>
<th>Description</th>
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<tbody>
<tr>
<td>High</td>
<td>Unsafe to operate. Stop production until risk is reduced.</td>
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<tr>
<td>Medium</td>
<td>Safe to operate. Threat to production. Reduce risk as soon as possible.</td>
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<tr>
<td>Low</td>
<td>Safe to operate. Further improvements achievable.</td>
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Recommendations and high-level implementation timeline
The study outcome report documents when and where issues should be addressed. ABB can then support you by implementing the recommendations to mitigate the identified risks. Corrective actions can range from ABB qualified security updates to reduce risks associated with cyber security exploits to third party software, to 800xA or other control and/or safety system updates and upgrades, hardware improvements and spares analysis and gap closure. Recommendations are normally grouped and categorized as below:

**Short-term corrective actions** may be implemented immediately during normal operations, with no plant shutdown and minimal investment required.

**Medium-term corrective actions** require implementation in the next planned plant shutdown using the current ABB software and hardware. No major investment or upgrade is required, but the activities themselves will be disruptive to operations and therefore should be conducted as part of a planned maintenance shutdown. In some cases, medium-term actions may depend on the completion of short-term actions.

**Long-term corrective actions** require significant planning, engineering and investment. These activities should be planned together with ABB experts and scheduled into future shutdowns. In some cases, long-term actions may depend on the completion of medium or short-term actions.

Benefits
ABB’s long experience in process safety and deep automation control domain knowledge helps keep customer systems running as they should, with full protection, ensuring optimal plant uptime and safeguarding your bottom line. A vulnerability study can also identify exactly where you need to comply with current and future regulations, including cyber security guidelines from the UK Health & Safety Executive (HSE).

As a customer you get a clear overview of your system performance, and suggested options to fix issues to ensure plant reliability and availability, all at a reasonable cost. Lowering the risk of issues happening and their consequences has clear operational and financial benefits. Those customers with lifecycle assessment included in their ABB CARE service engagement may already be aware of potential system vulnerabilities but can also benefit from a study specifically designed to identify resolutions for them.

We can of course tailor studies to meet your specific requirements. A typical vulnerability study involves around two weeks’ work by an ABB control team engineer(s).