Forsmark nuclear power station uses Windchill® FRACAS (formerly Relex FRACAS) to create a knowledge repository

WINDCHILL FRACAS SIGNIFICANTLY IMPROVES INTERNAL PROCESS EFFICIENCY

Forsmark Nuclear Power Station, Forsmark, Sweden

The Forsmark nuclear power station is one of the largest in Sweden. It is operated by a subsidiary of Vattenfall AB, a leading energy producer for northern Europe. This Swedish power company, which focuses on environmentally sustainable energy production, foresees expansion and growth in low carbon dioxide-emitting power production, such as wind, nuclear, biomass, hydro, and gas power. According to the Vattenfall website, Forsmark has three boiling water reactors that generate 20-25 billion kilowatt-hours of electricity in a normal year. This is approximately one sixth of Sweden's total electric energy.

> "The safety demands on our nuclear power plants are very strict. We are continually at work on developing and improving safety. In addition, the safety culture and safety work represent important aspects of staff training."
>
> – Forsmark information, Vattenfall website

The challenge: Centralize incident data

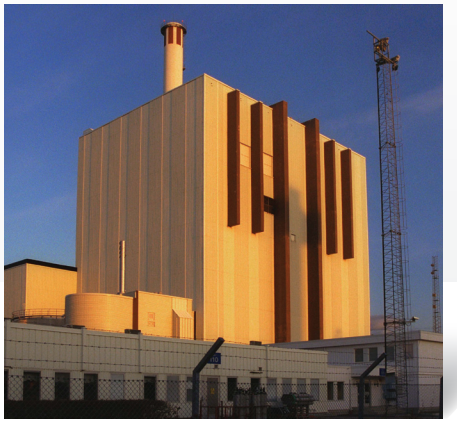
- Implement a system to collect and report on incidents across operations
- Make system available to all employees and contractors
- Provide for efficient incident categorization and analysis

The solution: Windchill FRACAS

- Offers a web-based interface for enterprise-wide use
- Supports role-based permissions for security
- Combines a workflow control resource with powerful reliability analytics

The result: Major improvements in process efficiency

- Provides an organized approach to incident analysis and corrective action
- Generates quality and reliability metrics to measure system performance
- Permits internal customization as processes evolve



Forsmark adopted a plan in 2007 to provide rapid feedback on questions of nuclear power safety with thorough reporting and follow-up.

Forsmark uses the Windchill FRACAS framework to collect and report on incidents across their operations. The FRACAS (Failure Reporting, Analysis, and Corrective Action System) module provides a flexible, comprehensive tool for controlling a range of closed loop corrective action processes.

Data Collection and Analysis

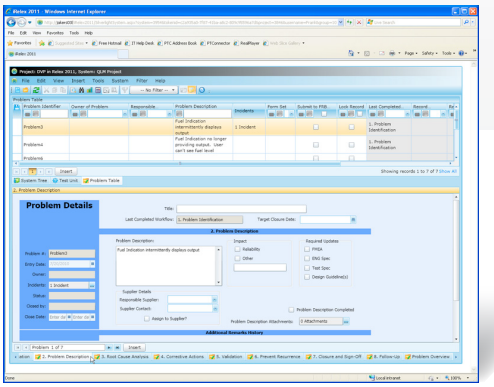
Forsmark was in need of a system in which employees and contractors could easily enter any type of issue or incident. By providing an organized approach to collecting and entering data, the FRACAS module allows Forsmark to:

- Collect incidents across all operations
- Categorize and analyze incidents
- Assign corrective actions immediately when certain criteria are met
- Identify trends over a moving 30-day window
- Perform root cause analysis

The Forsmark Implementation

At Forsmark, the tracking process begins when an employee or contractor uses the web-based FRACAS interface on the company's intranet to enter an incident. By combining an easy way of reporting an issue with a customized workflow process, their FRACAS implementation allows users with appropriate permissions to easily categorize and analyze new incidents.

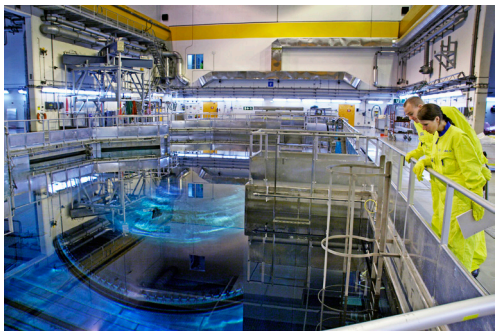
If an incident meets a series of criteria, a corrective action is immediately assigned so that resolution can begin. Otherwise, the incident is stored for trend analysis. These less critical records are further analyzed over a 30-day moving window to trigger alarms based on different types of criteria or combinations of events.



Web-based FRACAS forms allow for easy data entry and access for both Forsmark employees and contractors.

The Forsmark FRACAS implementation improves efficiencies of internal processes because it:

- Provides a web-based interface to support multiple users in a zero-client environment
- Offers role-based administration, audit trails, and other security features
- Allows the workflow to be easily adjusted to match desired organizational processes
- Tracks improvements in system performance gained through corrective actions



The reactor room at Forsmark. Nuclear energy production requires rapid and accurate corrective actions for any incident that may occur.

Additional Benefits

Besides using the FRACAS module for basic incident entry and analysis, Forsmark employs it to perform root cause analysis across categories of incidents, which leads to deeper, focused troubleshooting and correction of root-level challenges. Additionally, they use it to provide on-the-job training for employees and contractors before they go in to a certain area to perform maintenance tasks or modifications. By drawing on these prior collected experiences, Forsmark can greatly minimize the risk of workers repeating mistakes.

One of the important ongoing benefits that Forsmark gains from using Windchill FRACAS is that they can make changes to the system themselves. As with any process management system, the processes evolve over time. With the FRACAS module, Forsmark does not have to hire an external consultant to change a form, a report, or the data model. Users with administrative permissions can easily adapt the system to their requirements over time using wizard-based design tools rather than by having to write new programming code. Forsmark appreciates this ability to keep their own system up-to-date with advances in their process, organization, and analysis techniques.

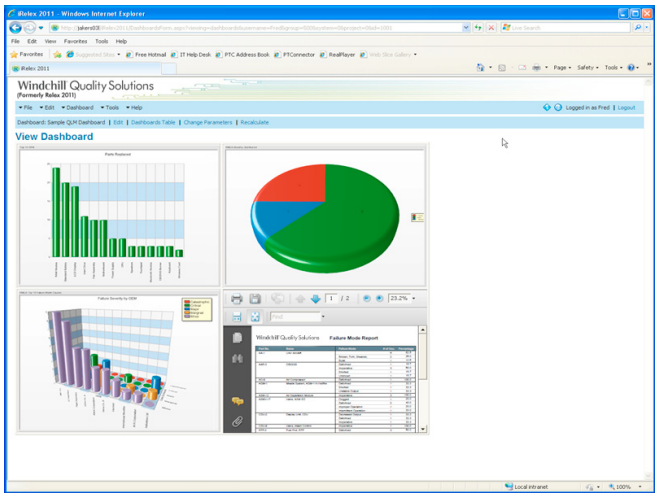
Summary

Using Windchill FRACAS ensures that Forsmark can collect incident data from employees and contractors across all plant operations. Anyone with login permissions can enter incidents across the company intranet, thereby ensuring ready accessibility to all users. The centralized FRACAS database supports efficient categorization, issue analysis, and reporting and graphing. Each newly entered incident is tagged for corrective action or further trending analysis. Automated triggers allow for notification of critical situations and effective correction of root-level challenges.

Beyond incident analysis, this repository of knowledge is used to train employees and contractors. Forsmark is able to strengthen and improve the control and review of its operational documentation, emergency preparedness procedures, and operator aids. The key reliability metrics provided by the FRACAS module allow Forsmark to see how well they are doing as they continue to make process improvements based on employee and contractor feedback. Forsmark disseminates information about these good practices in the hopes that other nuclear plants around the world implement them in their operations.

About Windchill FRACAS

Windchill Failure Reporting, Analysis, and Corrective Action System (FRACAS) is a comprehensive, closed loop corrective action software tool that enables you to collect, quantify, and control a wide range of incoming incident reports, such as test, field, or repair data. Windchill FRACAS streamlines your corrective action processes, including incident analysis, root cause determination, incident close-out, trend analysis, and corrective action tracking. Supporting a wide range of processes and compliance standards, such as ISO 9000, 8D, and RMAs, Windchill FRACAS offers a robust, scalable system which can be tailored to your requirements. Features include customizable data entry and outputs, workflow support, security and role-based permissions, custom calculations, reliability analytics, a zero-client web-based user interface, data connectivity, reliability growth calculations, and alert capabilities.



Web-based dashboards, as shown in this example, provide high-level management oversight of system metrics for trend analysis.

Learn More

To learn more about how Windchill FRACAS can address your specific needs for incident tracking and root cause analysis, please visit PTC.com/products/windchill/FRACAS.

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