Nuclear Power

mi solutions
& CONSULTING GMBH

Background

In barely any other industry is the public's focus on safety as high as in the nuclear industry. Highest standards with many redundancies lead to outstanding reliability. Nevertheless, problems can lead to unplanned or premature shutdowns. With our predictions of abnormal aging processes – in combination with a timely intervention in the operating mode – it is possible to reach the planned maintenance interval.

The Case

- Every year a revision is carried out on the power plant
- The reactor is shut down completely for maintenance
- Pressurized water reactors have a separate nuclear and conventional cooling water circuit. Pumps drive the nuclear circuit
- If problems occur between revisions, an unplanned shutdown of the reactor is inevitable
- Fowling processes can cause seals in the pumps to lose their functionality outside of regular maintenance
- If these are detected early, the reactor can be operated at reduced power until the next revision

Highlights

- By taking into account a wide range of functional parameters, it is possible to predict the leakage rate of the pumps and compare it with normal processes
- Even minor deviations can be detected
- The changes usually occur insidiously and then develop an increasingly rapid progression
- Even if the technical cause can often not be traced, our models can reliably predict the problems
- The AI models can also be used to obtain information on how to continue operation in case of irregularities

In the event that the reactor needs to be shut down prematurely, immediate repair is usually not possible, since the corresponding remote specialists must first be assembled. In the worst case, the costs for one day of shutdown can reach EUR 500 000. The costs for a power reduction through early detection and reaction with the help of **mi solutions** are significantly below this value. In addition to damage in the nuclear area, failures in other power plant areas can be detected as well.

Your Contact

Louis von Beaulieu

☐ +49 160 90 83 97 56
✉ Louis.Beaulieu@mi-solutions.eu

About Us

Data analysis methods have seen a rapid development in recent years, maturing into complex instruments. With our expertise we help you to strengthen your business without losing focus on your core tasks.