

Nuclear Power Plant Operator Reports 19.6% Rate of Return on SRC Maintenance Optimization Process

Problem: The operators of a nuclear power plant set out to implement performance improvements and plant modifications that would result in a safer, more reliable, and efficient operating plant. During this process the operator aggressively pursued the implementation of best practices and other lessons learned from the industry. The operator adopted an industry standard that outlined an equipment reliability process that maintains high levels of safe and reliable plant operation in an efficient manner. After completing a single point vulnerability assessment of the power plant based on the industry standard the operator realized that additional support, specifically in the area of maintenance optimization, was required to ensure the effectiveness of the process at their facility.

Approach: SRC identified a three-step approach to supporting the maintenance optimization requirements at the power plant. The first step would focus on developing reliability time-to-failure (TTF) models from plant-specific data for key component types identified during the single point vulnerability assessment that are not currently within the scope of other plant maintenance programs. The results of the TTF models were then combined into a template with pertinent maintenance strategies and cost-benefit analysis results to identify optimum replacement intervals for those components that would benefit from preventive maintenance. The second step of SRC's approach focused on system maintenance optimization that will result in maximum maintenance efficiency and systems availability and minimum overall system maintenance costs while not compromising regulatory or facility requirements. The final step of the approach is to provide the plant operator with the ability to sustain the optimization efforts in a disciplined manner into the future through delivery of a guidebook and training course that documents the SRC approach.

Solution: The results of the TTF models indicated that preventive maintenance was not feasible because many of the components were not subject to end-of-life or wearout conditions. For those components subject to wearout, the periodicity for performing preventive maintenance was often longer than currently specified in the plant's maintenance program (a 19.6% rate of return was estimated by the operator for Alion SRC's recommendations). Additional time and cost savings was possible through effectively packaging maintenance tasks together or eliminating unnecessary tasks. The plant operator also has a roadmap for continued improvement and optimization to ensure that future problems associated with aging equipment can be avoided.

SRC CONSULTING SERVICES

SRC consulting services address your toughest reliability, maintainability, and supportability (RMS) challenges. Since 1968, we have provided integral support to our commercial and defense customers to achieve their RMS goals. Beyond implementation of maintenance optimization techniques, the trained and experienced reliability professionals at SRC provide expert support to improve your bottom line and meet your customer and mission requirements through:

- Training in reliability and related disciplines
- Benchmarking of your products, processes, standards, and metrics against R&M best practices
- Developing and implementing RMS program plans
- Facilitating RMS tasks (i.e., FMEA, R&M assessment, sparing analysis, etc.)
- Identifying and assessing reliability goals and requirements
- Developing effective accelerated test strategies and procedures
- Conducting root cause and statistical analysis of problem areas
- Collecting and analyzing your data for customized engineering solutions
- Providing practical tools for engineers

The Alion SRC is ready to help you improve the availability, readiness, and total cost of ownership for your product. To get started, contact us today.