

CASE STUDY

ADS Extends the Life of the Primary Circuit Components of Nuclear Pressurized Water and Boiling Water Reactors

OVERVIEW

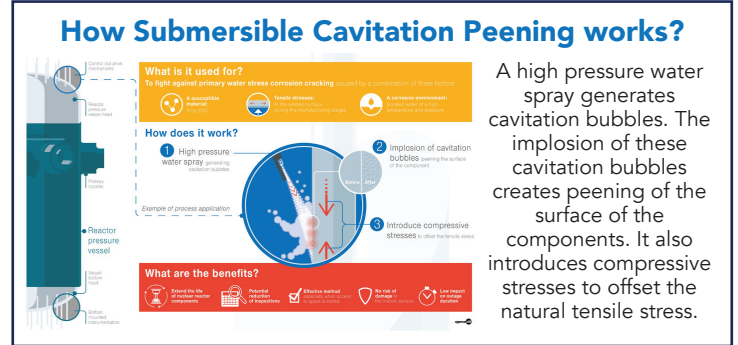
ADS was hired by an international leader in nuclear energy to support the innovative cavitation peening process on a nuclear reactor vessel head. This process had never before been used on a nuclear reactor. ADS facilitated the development of critical technologies and processes that lead to the success of this ground-breaking process.

THE CHALLENGE

The client needed a way to adhere to very stringent requirements and procedures to successfully design a process that could safely and reliably repair critical nuclear reactor parts. Once vulnerable components were identified, it was incumbent that there be a system in place to mitigate the problem and minimize the risk of excessive damage and cost.

SOLUTION

ADS played a vital role in the successful development of the cavitation peening process. ADS was able to facilitate critical portions of the project to support the client's target goal.



- ✓ ADS provided LabVIEW & engineering development, integration, & test support for the program.
- ✓ ADS helped develop & fine-tune 15 elaborate motion profiles to ensure the peening entirely covered the reactor nozzle.
- ✓ ADS coordinated 3-axis motion profiles with feedback encoders.
- ✓ ADS automated high & low pressure water controls.
- ✓ Integrated data acquisition to ensure the spray nozzle was in the right location & that water pressure was accurate throughout the entire profile.

CONCLUSION

The solution delivered was the first time that the Cavitation Peening technique had been used on a reactor vessel closure head. Following the completion of this project, the client can now offer this service to nuclear operators worldwide a proven alternative to component replacement.



- ✓ Client was awarded 2 first prizes at the World Nuclear Exhibition for the development of the process.
- ✓ Client was awarded 4 more projects eliminating costly head replacements.
- ✓ ADS was awarded 3 more projects from the client due to the success of the 1st project.

