



Mechanical Stress Improvement Process (MSIP®) D.C. Cook Unit 2

INTRODUCTION

Stress corrosion cracking as a result of excessive tensile stress is a recognized problem which can compromise nuclear plant safety and availability. NuVision's Mechanical Stress Improvement Process (MSIP®) is a patented process, invented and developed by NuVision Engineering, for preventing or mitigating stress corrosion cracking in operating nuclear plant pipe weldments. The process works by removing tensile residual stress and generating a favorable compressive stress pattern in its place.

NuVision successfully applied MSIP® at the D.C. Cook Unit 2 Nuclear Plant located in Bridgman, Michigan. This application was completed during the Spring 2010 outage. The customer selected MSIP® to eliminate the chance of stress corrosion cracking in the plants nozzle to safe end dissimilar metal piping welds on all eight reactor vessel outlet nozzles.

PROJECT CHALLENGES

The work scope included project management, engineering, equipment design, testing, crew training on a full size reactor vessel mock-up.

Expedited 8 month schedule from the start of the project to completion of MSIP® application.

Limited work space — D.C. Cook is an ice condenser plant so there was limited work areas.

The customer wanted the work completed in under 2 days 12 hours with a dose estimate of 10.8R or less.



D.C. Cook Site



D.C. Cook RV Nozzle Sand Box

PROJECT TAKE AWAYS

The team completed the application faster than planned in 2 days 10 hours with a team dose of 10.2R.

The Utility worked closely with the NuVision team to complete this effort as a integrated and seamless team.

The success of this application builds upon NuVision's excellent performance applying MSIP® to over 6000 welds worldwide.