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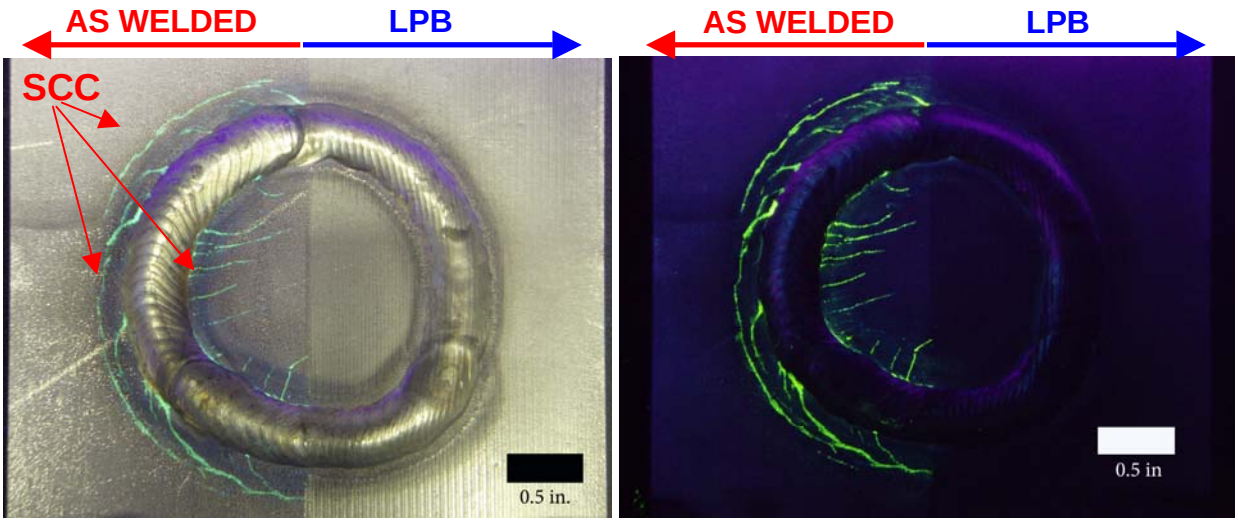
Low Plasticity Burnishing (LPB™) Eliminates SCC In Nuclear Alloy Welds

06/23/09, Cincinnati, OH— Nuclear power is a practical source of "green" energy capable of meeting the nation's power requirements without emitting carbon dioxide that adds to global warming. However, stress corrosion cracking (SCC) of welds has plagued existing reactors, impacting both safety and cost. By introducing a deep, stable layer of compressive residual stress, low plasticity burnishing (LPB™) has been proven to eliminate SCC in nuclear grade alloys, providing a permanent solution to the SCC problem.

In the fall of 2006, LPB™ was chosen over laser shock peening (LSP) as the solution for eliminating residual tension in the final closure weld of the long-term nuclear waste storage containers for the Yucca Mountain project. LPB™ produced residual compression over 6mm deep, exceeding the depth required for the surface to remain in compression for the 50,000-year design life of the Alloy 22 containers. The design review board unanimously selected LPB for the greater depth of compression, and advantages in logistics, quality control, surface finish, and cost.

A dual LPB™ system was integrated with the robotic container positioning and welding system designed by Idaho National Labs (INL). During initial trials in the spring of 2009, the LPB™ processing was performed exactly as engineered on the first run. The initial trial demonstrated the LPB™ process reliability and efficiency, with continuous 100% processing documentation, on a full-scale mockup. The INL staff reported that the system integration and initial trials were flawless, and expressed their appreciation for both the engineering and performance of the LPB™ system."



Fluorescent dye penetrant photographs show catastrophic SCC on the untreated half of a sensitized 316L stainless steel nuclear weld simulation specimen with an alloy 52 weld bead. The LPB™ processed half was un-damaged. Note that through cracks are arrested at the LPB™ boundary.

Senior Research Engineer, Jeremy Scheel of Lambda Technologies states, "The successful application of the LPB™ process to the INL waste containment vessels is an important milestone for this technology. The process has been in production in the aerospace and medical industries for years, and it is exciting to see the benefits that LPB™ provides used in the nuclear industry. The ability to mitigate SCC and

corrosion fatigue commonly seen in the nuclear industry can provide a significant increase in the service life and performance of many critical components. The success at Yucca Mountain has led to further research and funding for the development of the LPB™ process for use in various nuclear systems."

Lambda Technologies is an innovative company incorporating a premier materials research laboratory with a world-class engineering and production enterprise dedicated to the development and optimization of surface treatments to improve component performance. For additional information on Lambda Technologies or licensing the LPB™ process, contact Kimberly Bellamy at (513) 561-0883 or visit www.lambdatechs.com.