



SAFE ZERO-EMISSIONS ENERGY

NUCLEAR ENERGY

THE CHALLENGE

A nuclear energy company based in France wanted to proactively address the possibility of thermal fatigue occurring within a structural component in one of their reactors. Thermal fatigue arises from constant temperature changes and can lead to macroscopic cracks. While these cracks can be easily identified, they often occur in areas not directly accessible by employees carrying out an inspection. Failing to inspect, identify and address these cracks can result in costly plant closures, disruptions to the electricity production for the local community or serious nuclear incidents.

SASB & GRI METRICS ALIGNMENT

PROFIT

- ✓ DECREASED RISK OF POWER FAILURE
- ✓ REDUCED DOWN-TIME
- ✓ REDUCED REPUTATIONAL RISK OF POWER FAILURE

PLANET

- ✓ ASSET INTEGRITY FOR ZERO-EMISSIONS ENERGY GENERATION
- ✓ REDUCES RADIOACTIVE EMISSIONS

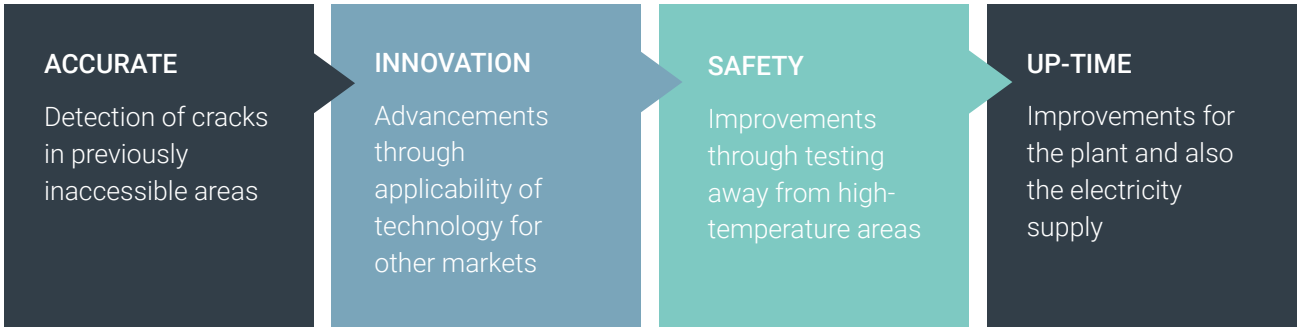
PEOPLE

- ✓ GRID RESILIENCE
- ✓ DECREASED SOCIAL EFFECTS OF DOWNTIME
- ✓ NUCLEAR PLANT SAFETY
- ✓ TOTAL RECORDABLE INJURY RATE

THE SOLUTION

The nuclear energy company hired Previa to utilize our Guided Wave Testing (GWT) technology. This technology uses low frequency ultrasound waves which allow for inspection at the inaccessible point of interest. As part of

the project, we provided a permanent GWT tool which can withstand significant temperature changes and is used to collect inspection data 24/7, even while the power station is operational.



THE RESULTS

The technology was successfully implemented and subsequently detected a change within a structural component at the exact location a crack had formed. This allowed the company to quantify the size of the defect, evaluate other similar components for the same issue and ensure the safe operation of the plant for its remaining life.

Nuclear energy generation has zero direct emissions in the generation phase and is key to the energy transition in many countries around the world.

- Successful implementation on tight, 20-week timeline
- Successful crack detection
- 10,000 hours of continued service without failure
- Transferability of the technology to other use cases

UN SUSTAINABILITY DEVELOPMENT GOALS (SDGs)



The SDGs provide an urgent call for action by all countries - developed and developing - in a global partnership. They recognize that ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth – all while tackling climate change and working to preserve our oceans and forests. The goals listed here indicate the SDGs addressed in this case study.