



# Operational Excellence Services

**Reliability & Maintenance**  
**Plant Diagnosis and Lifetime**  
**Improvement Service**



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## Access to Our Homepage

<https://www.jgc.com/en/business/epc/operation-maintenance/service/>

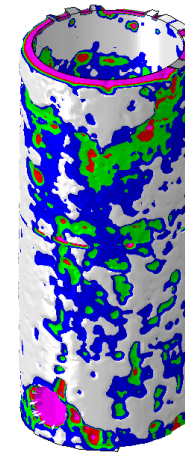
## Do you have any of these issues?

- ☹️ **Mechanical damage occurred!**  
**Can we continue operation? Should we replace?**
- ☹️ **What is the root cause?**
- ☹️ **Which improvement plan is the most efficient?**

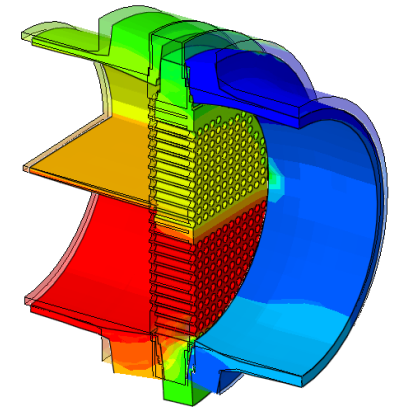
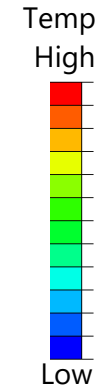
## PLANT PLUS<sup>SM</sup> Solution

- JGC's simulation-based engineering service
- Investigate the root cause of the mechanical damage
- Diagnose whether a damaged equipment can continue operation or should be reinforced, revamped partially, replaced totally
  - Leads to reduced cost of repair/revamp
- Propose effective improvement/reinforcement plan

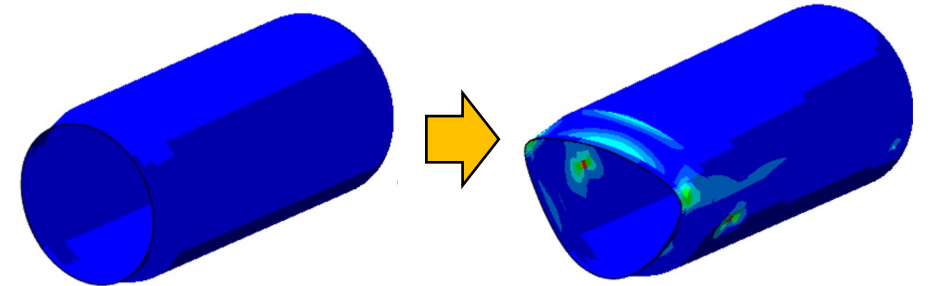
## Examples of Finite Element Analysis (FEA)



(1) External Corrosion Analysis Model by Laser Scanning

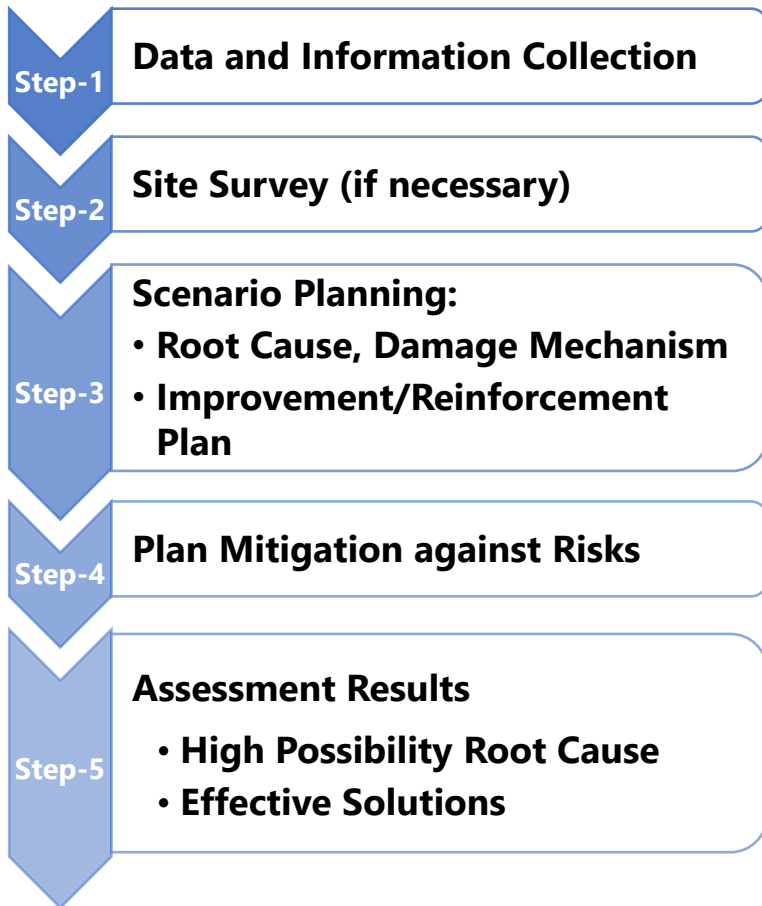


(2) Flange Deformation due to Temperature Distribution

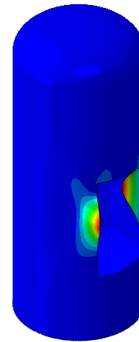


(3) Creep Deformation of Vessel during PWHT

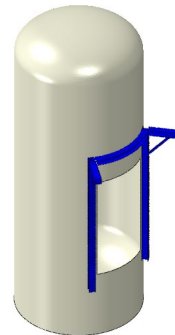
## Workflow & Result



Example: Large opening discovered during Turnaround



Assessed buckling risk for vessel with large hole



Proposed reinforcement plan

## Our Strengths

- Diagnosed from various perspectives such as international design codes, fitness-for-service codes, post construction codes, guidelines often used in the plant industry, and JGC own company standards
- Provided quantitative and easy-to-understand study results and countermeasures using structural analysis techniques such as finite element analysis (FEA)

## Our Experiences

**1000**

**Plant Diagnoses**

Structural analysis technology, computational fluid dynamics technology and noise assessment/control technology for 1,000+ diagnoses

**50+**

**Years**

Simulation-based engineering service for plant diagnosis and lifetime improvement