

CONTAINMENT LINER

STRUCTURAL AND DYNAMIC ANALYSIS, MEASUREMENT AND ERECTION SEQUENCE



Strong Need for Sophisticated Computational Dimensioning and Verifications

- During construction:
Load on unsupported dome \varnothing 46.8 m during concreting more than 2300 tons
- Normal operating conditions:
Loads induced by concrete deformations due to dead loads, pre-stressing, creep, shrinkage, etc
- Loss of coolant accident:
Loads induced by concrete deformations and liner temperature up to 300°C (572°F); overpressure up to 8.6 bar

Transfer of Actual Shape via Measurements into 3-D-Model and Validation

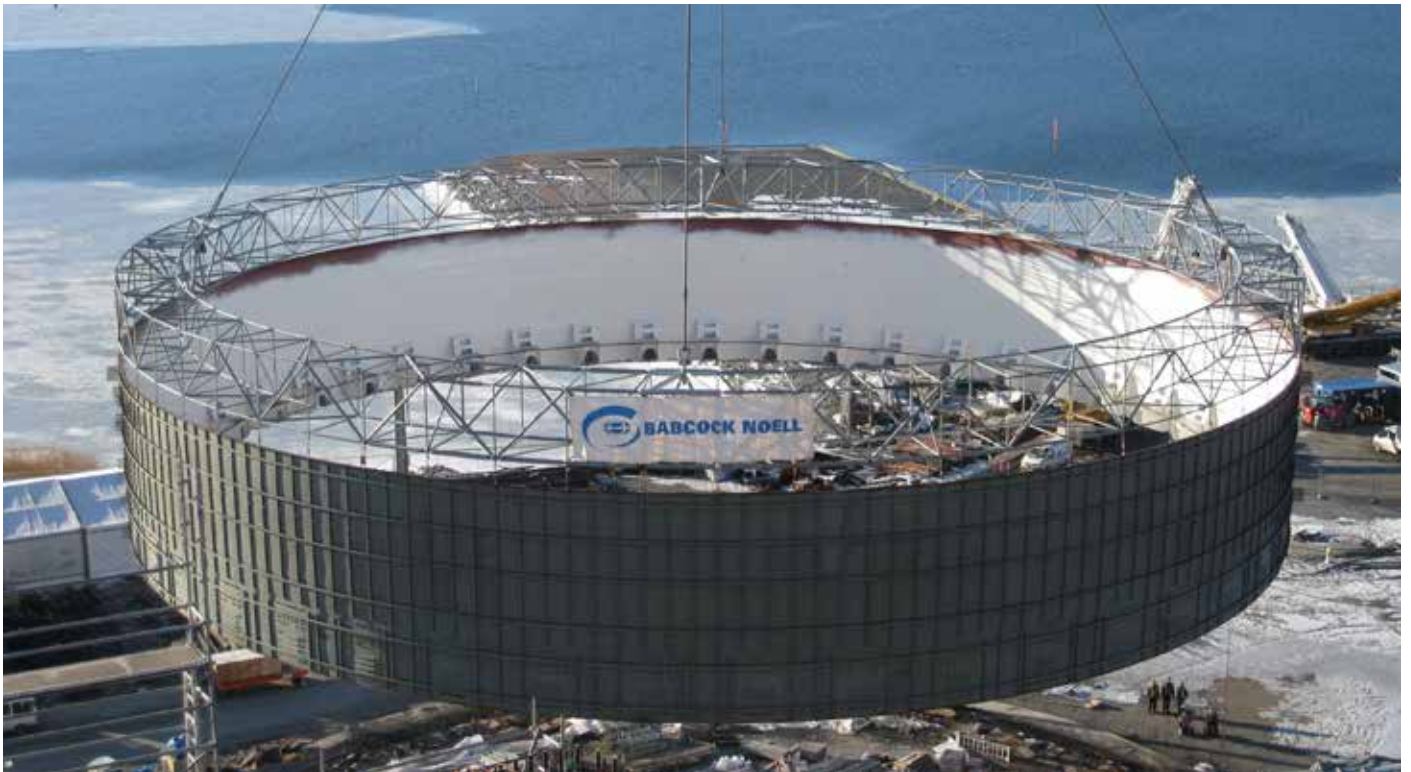
- Recording of 20 million measuring points
- Evaluation of the „measuring point cloud“ against the theoretical contour of 3-D CAD-drawings and illustration of the deviations in a coloured picture

Erection of Liner on Site

- Pre-assembly places on site
- Site crane with lifting capacity of 220 t
- Climatic conditions: wind/storm, rain/snow/ice, low temperatures, darkness in winter
- Interfaces with other suppliers, mainly the civil constructor
- Short installation time due to complete welded containment rings



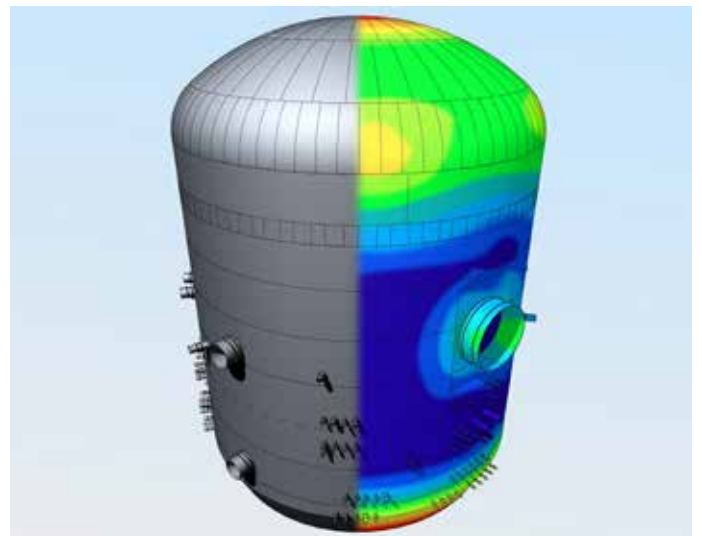
BILFINGER



Olkiluoto 3: Lifting of a Containment Liner



Olkiluoto 3: Lifting of the Dome



Static and dynamic calculation

Reference for EPR™

- Finland: NPP Olkiluoto 3

Reference for NPP

- Germany: NPP Stade
NPP Neckarwestheim 2
NPP Isar 2
NPP Grohnde
NPP Mühlheim-Kärlich
NPP Unterweser
- Brazil: NPP Angra 2
- Spain: NPP Trillo 1 and 2

Engineering & Technologies

Bilfinger Noell GmbH
 Alfred-Nobel-Straße 20 · 97080 Würzburg · Germany
 Phone: +49 931 903-6003 · Fax +49 931 903-1018
 noell.nuclear@bilfinger.com · www.noell.bilfinger.com