
**Barsebäck as a Research and Development Platform,
Extraction and Analysis of Service-aged and
Irradiated Reactor Pressure Vessel Material**

Pål Efsing^{1,4}
Jonas Faleskog¹
Daniela Klein¹
Noora Hytönen²
Sebastian Lindqvist²
Kristina Lindgren³
Mattias Thuvander³
Jenny Roudén⁴

¹ Department of Engineering Mechanics – unit of Solid Mechanics,
Royal Institute of Technology (KTH), SE-100 44 Stockholm Sweden

² VTT Technical Research Centre of Finland Ltd, PO Box 1000, FI-02044
VTT, Espoo, Finland

³ Chalmers University of Technology, Department of Physics, SE-412 96,
Göteborg, Sweden

⁴ Ringhals AB, SE-43285 Väröbacka, Sweden

Abstract

As part of the NKS-R program, VTT, Chalmers University of Technology and KTH have extended the mechanical and microstructural testing in order to analyze the as-aged material properties of the retired reactor pressure vessel, RPV, from Barsebäck unit 2. The testing included Impact testing of material from the reactor pressure vessel and microstructural characterization of the weld metal using LOM, SEM and APT. Due to the nature of the work, the NKS-project is connected to a number of adjacent activities, including support from the Finnish Nuclear Safety Program, the SAFIR-program, the Swedish Radiation Safety Authority SSM and Swedish Centre for Nuclear Technology, and SKC.

Key words

Low alloy steel, irradiation effects, fracture toughness, ductile to brittle transition temperature, constraint effects, high resolution microscopy, microstructural characterization

NKS-468
ISBN 978-87-7893-563-2
Electronic report, February 2023
NKS Secretariat
P.O. Box 49
DK - 4000 Roskilde, Denmark
Phone +45 4677 4041
www.nks.org
e-mail nks@nks.org