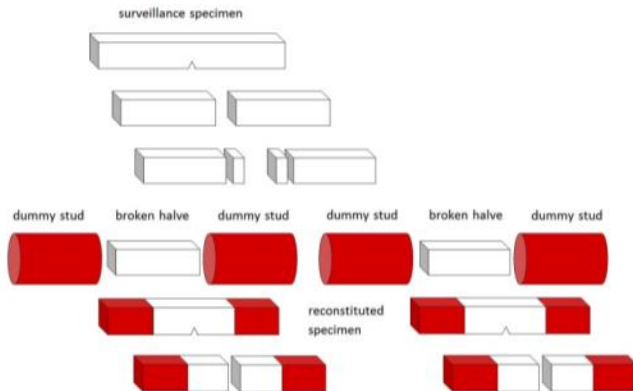
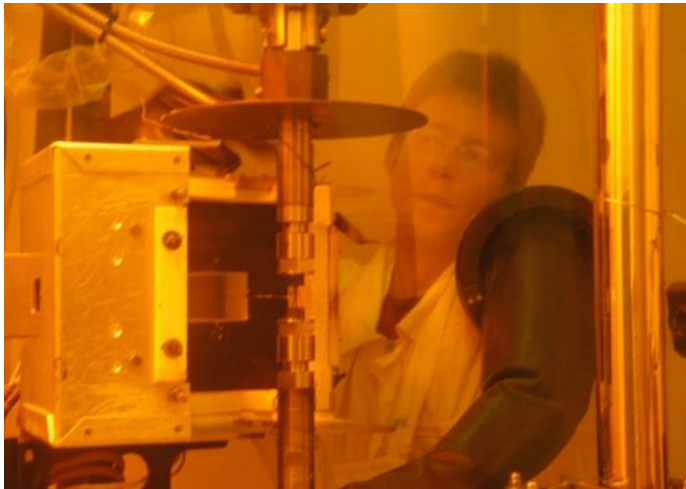


# Development of Reconstitution setup AT NRG

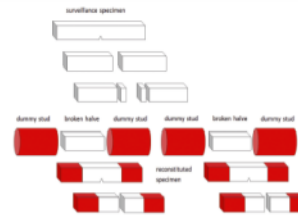
- H. Nolles



## DEVELOPMENT OF RECONSTITUTION TECHNIQUE AND TESTING OF RECONSTITUTED BENDING BARS IN HOT CELL

H. Nolles<sup>1</sup>, M. Kolluri<sup>1</sup>, C. Li<sup>1</sup>, F. Frith<sup>1</sup>, P. ten Pierick<sup>1</sup>  
<sup>1</sup>Nuclear Research & consultancy Group (NRG), P.O. Box 25, 1756 ZG Petten, The Netherlands.  
 \*Corresponding author: H. Nolles, Tel: +31 224 568 073, e-mail: nolles@nrg.eu

### INTRODUCTION



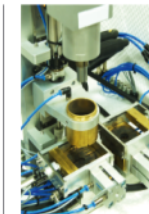
- For most of the nuclear power plants currently in operation, surveillance programs are used to monitor and predict the material degradation behaviour of reactor pressure vessels under irradiation. For life time extension of some current nuclear power plants, practically no original surveillance samples remain unused, while there are usually large quantities of broken specimens kept in archive. Reconstitution is a technique developed to refurbish full-size Charpy specimens out of the broken surveillance specimens by joining the broken halves with dummy studs.

- Reconstitution test setup is developed at NRG according to ASTM E1253, using arc stud welding technique. In parallel, an in-cell three point bending test setup has been developed for  $K_{IC}$ ,  $J_{IC}$  and master curve testing according to respective ASTM standards.

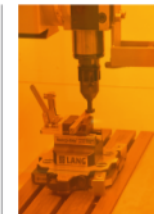
### DEVELOPMENT OF SETUPS FOR RECONSTITUTION



Reconstitution and milling setup in hot cell



Stud welding machine



Milling machine and tools



### RECONSTITUTION STEPS AND THREE POINT BENDING SETUP IN HOT CELL

