

Expertise in Dry Storage

Comprehensive Evaluation of Nuclear Waste Management Systems



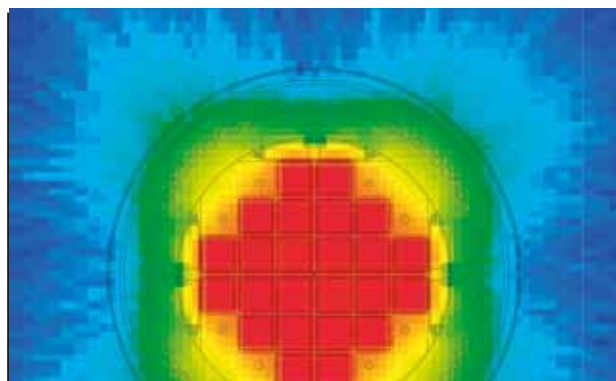
Expertise in Dry Storage

Comprehensive Evaluation of Nuclear Waste Management Systems

Our Cooperation – Your Benefit

Our Competencies

- Analyses and assessments of nuclear installations and casks. This includes inventories, behavior of fuel assemblies during long term dry storage, criticality safety during transportation and storage, calculation of radiation fields and heat removal

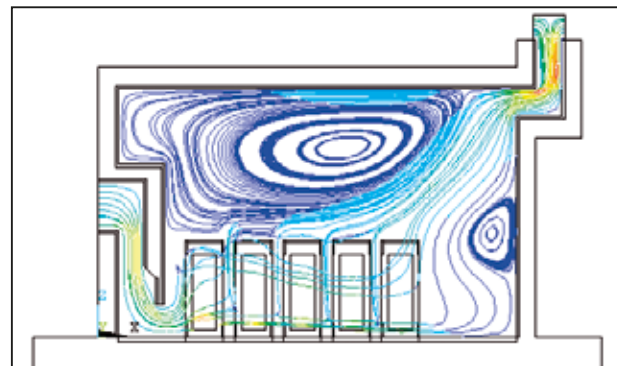


- Safety analyses and assessments for sites, structures, including operating and handling equipment for dry storage, including aspects of component safety, such as strength analysis, nondestructive testing and aging management
- Assessment of site-specific operational procedures and accident analyses during transport and handling of casks
- Radiation protection and instrumentation during waste treatment and storage, this includes analyses of radiological effects of the emission from nuclear installations during normal operation and accidents

Our References

- Throughout Germany assessment for the approval of site-related and central interim storage facilities for spent nuclear fuel
- Germany-wide monitoring of the construction of on-site and central interim storage facilities for spent nuclear fuel

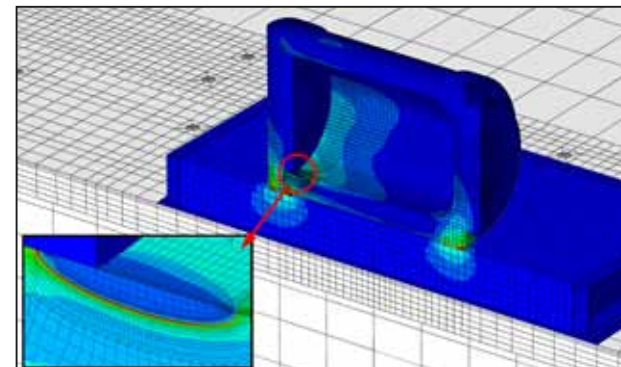
- Assessment of radiation fields and heat removal during licensing procedures for transport and storage casks for spent fuel
- Assessment of the pilot conditioning facility Gorleben including the buffer storage installation for spent fuel elements
- Assessment of the shielding from the central storage facility Würenlingen (Switzerland)
- Assessment of heat removal from interim storage of NPP Beznau (Switzerland)
- Certification of technical aspects with regard to transport and storage during loading of casks on behalf of the authorities in La Hague (France) and Sellafield (UK)
- Supporting the Authority in carrying out the European stress tests on nuclear facilities in Germany



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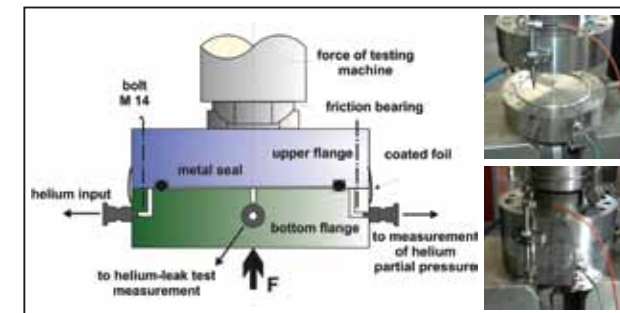
Our Competencies

- Comprehensive safety evaluation of container designs manufactured for interim storage and final disposal of radioactive waste
- Assessment of the engineering quality of containers based on state-of-the-art science and technology
- Assessment of mechanical container design under normal storage conditions
- Assessment of thermal suitability and stability of the materials and components across the entire container temperature range
- Assessment of design-basis accidents, e.g. earthquake, fire, container drop from a crane in the storage hall
- Assessment of beyond-design-basis events with a very low probability of occurrence like aircraft crash and explosions outside the storage site



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- Assessment of long term suitability of all container components under mechanical, thermal, radiological and other environmental considerations
- Assessment, determination and monitoring of the necessary quality assurance measures for development, production and operation of the containers
- Scientific investigations carried out in order to maintain and develop technical expertise needed in all fields of engineering assessment. These include
 - Methods for mechanical and thermal stress analysis of containers and components using the Finite Element Method (FEM)
 - Investigation of the long term behavior of materials and structures, e.g. sealing systems
 - Determination of safety margins



Our References

- More than 30 years of successful safety expertise concerning container approval and licensing procedures for all spent fuel storage facilities in Germany
- Representation and participation in national and international committees and conferences as well as numerous contributions to technical and scientific journals



BAM

is a Federal Research Institute under the Federal Ministry of Economics and Technology. The approximately 1600 employees are mostly scientists working in nine technical departments. Department 3 “Containment Systems for Dangerous Goods” employs about 60 staff members in the field of design testing and safety evaluation of transport and storage casks for radioactive materials. For more than 30 years, these experts support all important approval and licensing procedures in that area in Germany. They provide a wealth of knowledge and experience and maintain excellent relationships with many national and international organizations e.g. IAEA.

TÜV NORD EnSys Hannover

is a leading full-service provider of expert services in the field of nuclear technology. TÜV NORD EnSys Hannover has been active in Germany for more than 40 years. Over 200 experienced engineering and scientific members of staff carry out safety assessments and testings for approval and supervisory procedures required under nuclear energy regulations. TÜV NORD EnSys Hannover GmbH & Co. KG is a company of the TÜV NORD Group with over 10,000 employees in more than 70 countries of Europe, Asia, America and Africa.

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