

OECD NEA activities and experience in safety case development for geological disposal of high-level waste

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OECD member countries and mission

Organisation for Economic Co-operation and Development

- Established in 1961
- Headquarters in Paris, France
- 34 member countries in Europe, N.
 / S. America, Asia-Pacific region
- Mission:

Promote policies that will improve the economic and social well-being of people around the world

• ~2,500 staff





Structure of the OECD

Secretary-General: Angel Gurría

Administrative Services

- Public Affairs & Communications
- Associations Advisory Committees to OECD
- International Services for Remunerations and Pensions

Directorates

- Economy
- Tax, Finance
- Employment
- Social Welfare
- Health
- Education
- Environment
- Science & Tech.
- Industry & Entrepreneurship
- Trade, Agriculture & Fisheries

Agencies

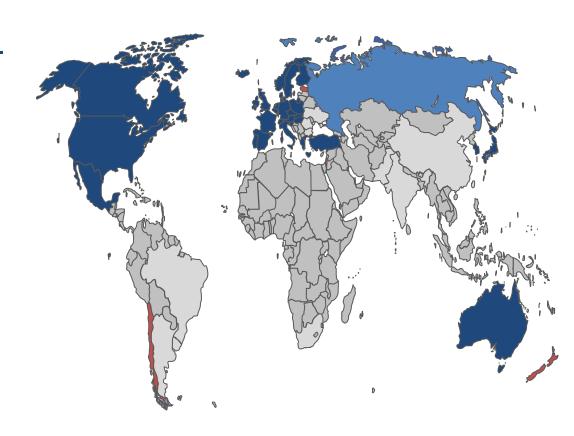
- Nuclear Energy Agency
- Development Centre
- International Transport
- Sahel Club
- International Energy Agency





NEA member countries

- 31 member countries in Europe, North America and the Asia-Pacific region;
- Account for ~83 % of the world's installed nuclear capacity
- 82 staff
- 2013 budget: 11 M €





NEA mission

- To assist its member countries in maintaining and further developing, through international co-operation, the scientific, technological and legal bases required for a safe, environmentally friendly and economical use of nuclear energy for peaceful purposes
- To provide authoritative assessments and to forge common understandings on key issues as input to government decisions on nuclear energy policy and to broader OECD policy analyses in areas such as energy and sustainable development.





Structure of the NEA

Steering Committee for Nuclear Energy

CSNI

Committee on the Safety of Nuclear Installations **CNRA**

Committee on Nuclear Regulatory Activities **RWMC**

Radioactive Waste Management Committee **CRPPH**

Committee on Radiation Protection and Public Health

NSC

Nuclear Science Committee

of the NSC (Data Bank Management Committee)

Executive Group

NDC

Committee
for Technical
and Economic
Studies on
Nuclear
Energy
Development
and the Fuel
Cycle

NLC

Nuclear Law Committee

As of 18 September 2012





Radioactive Waste Management Committee (RWMC)

Regulators' Forum (RWMC-RF)

RK&M

Expert Group on Preservation of Records, Knowledge and Memory across Generations

Integration Group for the Safety Case (IGSC)

- CLAY CLUB Expert Group on the characterization, understanding and the performance of Argillaceous Rocks as Repository Host Formations
- SALT CLUB Expert Group on repositories in Rock Salt Formations
- EG-OS Expert Group on Operational Safety

Forum on Stakeholder Confidence (FSC)

Working Party on Decommissioning and Dismantling (WPDD)

- DCEG Decommissioning Cost Estimation Group
- TGRCD Task Group on Radiological Characterization and Decommissioning
- DECOM-R&D Task Group on Future R&D and Innovation Needs for Decommissioning

RWMC joint projects with other NEA divisions

- **CPD** Co-operative Programme for the Exchange of Scientific and Technical Information Concerning Nuclear Installation Decommissioning Projects
- TDB Project Thermochemical Database







IGSC – Integration Group for the Safety Case

- Established in 2000;
- Mission: to assist member countries to develop effective safety cases supported by robust scientific technical basis. Also provides a platform for international dialogues between safety experts to address strategic and policy aspects of repository development;
- 46 members, representing 38 organizations in 17 countries senior technical specialists experienced in the development of safety cases for deep geological disposal projects. Members have sufficient seniority to mobilize other experts within their organization to contribute to IGSC initiatives







Mode of Operation

- Annual plenary meeting including a topical session
- Joint activities with the International Atomic Energy Agency (IAEA) and the European Commission (EC)

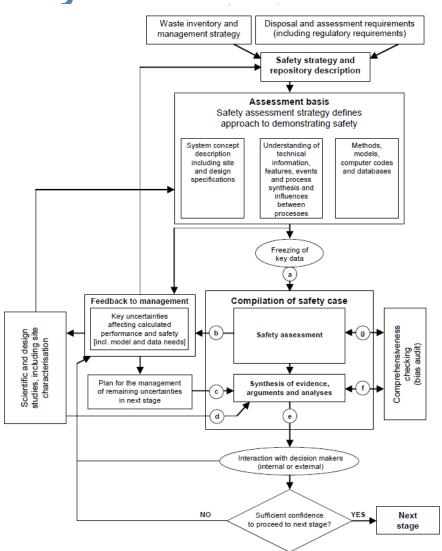
Services to members

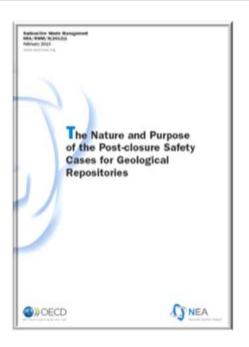
- Expert / Task groups and projects to exchange and share knowledge, best practices
- High quality, NEA databases for safety case development
- Peer review members' radioactive waste management programmes





Safety cases





 Safety Cases are instrumental in demonstrating long term safety of DGR





The Safety Case and its Presentation

- A safety case is a formal compilation of evidence, analyses and arguments that quantify and substantiate a claim that the repository will be safe;
- A safety case are presented to support a decision (e.g. licensing), to help reviewing project status, to test safety assessment methods, or to prioritize R&D programme.





Current Activities and Projects

3 experts groups

IGSC

Clay Club

- Created in 1990
- Studies all aspects of clay as a host formation
- 23rd meeting on Oct 24-26, 2013, Honorobe, Japan

Activities:

- Self-sealing in clay;
- Geosciences to achieve confidence;
- Natural tracer;
- Clay catalogue (FEPs*);
- Stability and buffering capacity of clay.

Salt Club

- Created in 2012
- Studies all aspects of rock salts as a host formation
- 2nd meeting on Oct 18, 2013, Berlin

Activities:

- Microbes in rock salt:
- Actinide and brine chemistry;
- Salt FEPs*
- Salt archives:
- Salt seals / barriers

Operational Safety

- Created in 2013
- Studies operational safety issues in operating a geological repository
- 1st meeting on Jun 24, 2013, Paris

Activities:

- Fire risks in DGR;
- Ventilation design;
- Co-activity hazards (construction & waste emplacement);
- Operational safety hazard database

FEPs: Features, events and processes





IGSC Projects

- NEA International FEP database
 - Web-based database; with links to countries' specific FEPs
- Scenarios development
 - Member exchange experience in developing scenarios in safety case. A workshop in 2014.
- Repository Monitoring
 - NEA report on monitoring techniques and approaches;
 - 2nd NEA report on stakeholder expectations on monitoring.
- Gas migration
 - IGSC position paper on gas behaviour in geosphere;
- Repository data and knowledge management
 - Create metadata that national programmes can use to manage their data in developing safety case;
- Thermochemical Database (TDB)
 - An international chemical thermodynamic database





Previous activities and main achievements

- AMIGO "Approaches and Methods for Integrating Geological Information into the Safety Case" - reports;
- MESA "Methods for Safety Assessment"
- Underground Research Laboratories (URLs)
- "Cementitious materials in safety case for geological repositories for radioactive waste" – brochure;
- Sorption project;
- Review of Underground Research Laboratories (URLs) in DGR development.
- For further information, visit http://www.oecd-nea.org/rwm/igsc/.









NEA IGSC Publications

Free publications, visit http://www.oecd-nea.org/rwm/igsc/

Recent publications:

- The Nature and Purpose of the Post-closure Safety Cases for Geological Repositories;
- Underground Research Laboratories
- Indicators in the Safety Case;
- Methods for Safety Assessment of Geological Disposal Facilities for Radioactive Waste

Flyers:

- Engineered Barrier System
- Construction and Operation of Geological Disposal Facilities
- Optimization of Geological Disposal Facilities





Thank you for your attention!