

Brief history and present level of the NEA IFEPs list

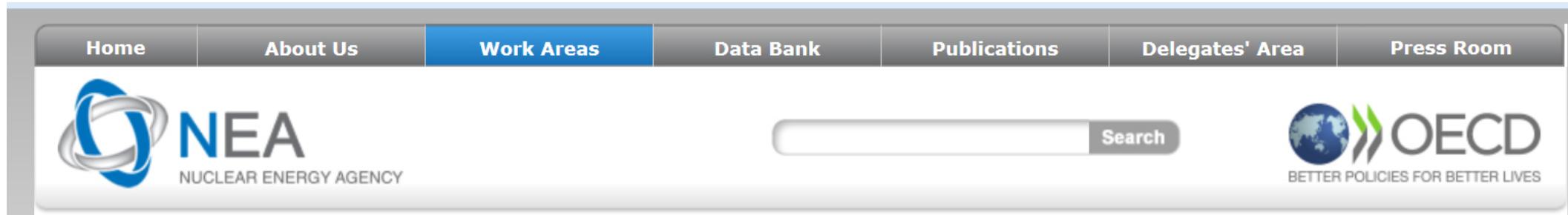
Features, events and processes (FEPs)

FEPs database

The FEP database assembles features, events and processes for geological disposal as an aid to national programmes to identify, classify and screen FEPs in safety assessment. The database consists of two main parts:

- The International FEP List – a comprehensive and structured list of **factors relevant to the assessment of long-term safety of nuclear waste repositories**.
- Project Databases – a collection of FEP lists and databases, with references, compiled during repository safety assessment studies.

An NEA publication on the [Features, Events and Processes \(FEPs\) for the Geologic Disposal of Radioactive Waste](#) was released in 1999. An updated version of the FEP database was completed in 2006; this version (2.1) can be [downloaded as a zip file](#) (4 Mb).



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In light of the findings from the 2010 questionnaire on “the use of FEPs in performance assessment studies and the scope for related NEA IGSC activities”, the NEA is supporting the revision of the NEA International FEP list and the associated database to ensure that they remain useful and relevant to the work of member states. [The update of the International FEP list and database is currently being updated](#). More information of this work activities will be provided when available.

[See attached NEA September 2012 documents for further information regarding the updated list](#)

Biological/biochemical processes and conditions in the geosphere (version 2.1)

MAPPING.nf2

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List of PFEPs related to a given IFEP

Selected IFEP Biological/biochemical processes and conditions (in 2.2.09)

Total of **11** Project FEPs related to this IFEP

Microbes	A 2.45
Colloid behaviour in the host rock	E GEN-04
Microbial activity	E SFL-32
Far-field transport: Biogeochemical changes	H 2.3.13
Microbes	J 2.1.10
Microbial activity	K 5.22
Microbial activity	K 6.22
Colloid generation and transport	S 008
Microbial activity	S 057
Colloid transport	W 2.078
Microbial transport	W 2.087

Advice:
Select a PFEP from the list and press 'related PFEP' button to see the related PFEP's description. Use the scroll bar on the right if more than about 15 related PFEPs are found.

[Print list](#) [See related PFEPs description](#) [Return to IFEP record](#)

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J	SKIB89	The Joint SKI/SKB Scenario Development Project, 1989
N	NEA92	NEA Systematic Approaches to Scenario Development, 1992
H	HMIP93	HMIP Assessment of Nirex Proposals - System Concept Group, 1993
A	AECL94	AECL Scenario Analysis for EIS of Canadian Disposal Concept, 1994
K	KRIS94	Nagra Scenario Development for Kristallin-I, 1994
S	SITE94	SKI SITE-94 Deep Repository Performance Assessment Project, 1995
W	WIPP96	US DOE Waste Isolation Pilot Plant, CCA, 1996
I	IRUS97	AECL Issues for the 'Intrusion Resistant Underground Structure', 1997
M	MOL94	SCK.CEN Catalogue relevant to disposal in Boom Clay, 1994
E	SKIE02	SKI Encyclopedia of FEPs for SFR and spent fuel repositories, 2002

Biological/biochemical processes and conditions in wastes and EBS (v 2.1)

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List of PFEPs related to a given IFEP

Selected IFEP Biological/biochemical processes and conditions (in wastes) 2.1.10

Total of **33** Project FEPs related to this IFEP

Biological activity	A 1.03
Microbes	A 1.54
Microorganisms	A 1.55
Colloid behaviour in the buffer and backfill	E SFL-05
Colloids and particles in the canister	E SFL-06
Colloid generation in the waste package	E SFR-01
Colloid generation and transport in the shell and grout	E SFR-02
Degradation of the bitumen matrix	E SFR-06
Degradation of the organic waste	E SFR-08
Gas generation in the repository	E SFR-11
Radionuclide release from the waste	E SFR-15
Radionuclide release from the waste	E SFR-18
Groundwater chemistry in the near-field	E SFR-20
Methane and carbon dioxide by microbial degradation	H 1.2.2
Biological activity (bacteria & microbes)	I 012
Buffer (plugging by bitumen, slime molds, waste degradation)	I 025
Seeds in vault/wate	I 270
Microbes	J 2.1.10
Microbial activity	K 1.22
Microbially-mediated corrosion	K 2.05

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Microbial activity	K 3.17
Microbiological effects	M 3.2.07
Microbiological effects	N 3.2.7
Colloid generation-source	S 009
Colloids/particles in canister	S 010
Microbial activity	S 057
Degradation of organic material	W 2.044
Effect of temperature on microbial gas generation	W 2.045
Effect of pressure on microbial gas generation	W 2.046
Effect of radiation on microbial gas generation	W 2.047
Effect of biofilms on microbial gas generation	W 2.048
Microbial growth on concrete	W 2.076
Colloid formation and stability	W 2.079