Country Profile Template

Contracting Party: Switzerland

Section 1: Summary document detailing

- Relevant national authorities and responsibilities;

Licensing authority for nuclear facilities: Federal Council (government)
Supervisory authority for nuclear facilities: Swiss Federal Nuclear Safety Inspectorate (ENSI)
Licensing and supervisory authority for medical and research facilities and the environment: Federal Office of Public Health (FOPH)
Supervisory authority for industries: Suva

- National legislation and basis for regulation;

Nuclear Energy Act (NEA), 732.1
Nuclear Energy Ordinance (NEO), 732.11
Radiological Protection Act (RPA), 814.50
Radiological Protection Ordinance (RPO), 814.501
Guidelines from the Swiss Federal Nuclear Safety Inspectorate

- Application of BAT/BEP in domestic legislation;

Ordinance on the approval of international decisions and recommendations, 814.201.81
Periodic safety review: Art. 34 NEO, Guideline ENSI-A03 (Chap. 5.2.4.g)

- Dose limit, constraints and discharge limit setting rationale;

Annual dose limit for members of the public: 1 mSv (RPO)
Annual source-related dose guide value for sites of nuclear facilities: 0.3 mSv (guideline ENSI-G15, as the sum of the doses due to radioactive discharges into the atmosphere and into the water, as well as direct radiation)
Annual dose guide value for direct radiation: 0.1 mSv (guideline ENSI-G15)
Limit on the (weighted sum of nuclide specific) concentration of radioactivity in the discharged water: 2000 times the immission limit values for water (RPO)
Design limit for radioactive releases caused by incidents in nuclear facilities (Art. 123 RPO):

- with an occurrence probability greater than 0.01 per year: less than the source-related dose guide value;
- with an occurrence probability greater than 0.0001 per year: less than the dose limit for members of the public;
- with an occurrence probability greater than 0.000001 per year: less than 100 mSv for members of the public.

- Regulation, surveillance and monitoring;
- Environmental monitoring programmes;

An environment monitoring regulation is issued by the Inspectorate for each nuclear facility with:

- the requirements on the control of discharges

- a complete programme on environmental monitoring of radioactivity and direct radiation in the vicinity of the facility.

The programme on environmental monitoring, reviewed annually and modified as necessary, is drawn up by the Federal Office of Public Health (FOPH) in co-operation with the Inspectorate, the National Emergency Operation Centre (NEOC) and the Cantons. It includes:

- measurements of dose rate and integral dose
- samplings and measurements of air, drinking water, rainwater, river water, river sediments, soil, plants and food.

- Radiation dose assessment methods;

The calculation model for the dose resulting from radioactive discharges for a person of the critical group in the vicinity of a nuclear facility is defined in the guideline ENSI-G14.

- Environmental norms and standards;

Ordinance on Contaminants (VHK), 817.022.15: maximum concentration values for radionuclides in food and drinking water
Art. 24 RPO: immission limits

- Quality assurance.

The Swiss Federal Nuclear Safety Inspectorate is accredited in accordance with SN EN ISO 17025 for the measurement of radioactivity and dose rate.
The licensee of a nuclear facility is required to establish a quality management system for safety relevant processes (guideline ENSI-G07).

Section 2: Nuclear Power Plants

Name: Beznau nuclear power plant
Location: Döttingen, canton of Aargau
Commercial commissioning block 1: December 1969
Commercial commissioning block 2: April 1972
Catchment area: River Aare, catchment area of the river Rhine

Name: Gösgen nuclear power plant
Location: Däniken, canton of Solothurn
Commercial commissioning: November 1979
Catchment area: River Aare, catchment area of the river Rhine

Name: Leibstadt nuclear power plant
Location: Leibstadt, canton of Aargau
Commercial commissioning: December 1984
Catchment area: River Rhine

Section 3: Reprocessing facilities

None

Section 4: Fuel fabrication facilities

None

Section 5: Radioactive waste treatment facilities

Storage facility for radioactive waste from nuclear facilities:
Name: Zwilag Zwischenlager Würenlingen AG
Location: Würenlingen, canton of Aargau
Official inauguration: April 2000
Catchment area: River Aare, catchment area of the river Rhine

Storage facility for radioactive waste from medical, industrial and research facilities:
Name: Paul Scherrer Institute
Location: Würenlingen, canton of Aargau
Catchment area: River Aare, catchment area of the river Rhine
Note: PSI does not differentiate its discharges between the various facilities

Section 6: Research reactors

None

Section 7: Decommissioning activities

Nuclear power plant:
Name: Mühleberg nuclear power plant
Location: Mühleberg, canton of Bern
Commercial commissioning: November 1972
End of commercial production: December 2019
Start decommissioning: September 2020
Catchment area: River Aare, catchment area of the river Rhine

Research reactors and experimental incineration plant for radioactive waste:
Name: Paul Scherrer Institute
Location: Würenlingen, canton of Aargau
Catchment area: River Aare, catchment area of the river Rhine
Note 1: PSI does not differentiate its discharges between the various facilities
Note 2: PSI operates a Hotlab with hot cells for specimen preparation techniques and microstructural characterisation of highly radioactive materials; the Hotlab is also considered a nuclear facility under Swiss law.
Research reactor: Saphir
- In operation: 1957 – 1994
- Start decommissioning: 2000

Research reactor: Diorit
- In operation: 1960 – 1977
- Start decommissioning: 1994

Research reactor: Proteus
- In operation: 1968 – 2011
- Start decommissioning: 2017

Experimental incineration plant for radioactive waste
- In operation: 1974 – 2002
- Start decommissioning: 2014