

# Convention on Nuclear Safety 7<sup>th</sup> Review Meeting – 2017



**International Atomic Energy Agency IAEA, Vienna**

## **Country Review Report for Switzerland**

**Drafted by Country Group N° 7**

(Australia, Croatia, Denmark, India, Ireland, Mali, Netherlands, Peru, Sri Lanka, Switzerland, Ukraine)

Rapporteur: Mr. Simon Coenen

**Version: Final**

*DISCLAIMER: Per INFCIRC 571, Revision 7, Para. 16-19 and Annex IV, Contracting Parties were invited to comment on the implementation of the CNS reporting guidance. Contracting Parties were also encouraged to submit proposed Good Practices, Challenges, and Suggestions prior to the Review Meeting. The draft Country Review Report documents the preliminary observations identified by the Contracting Parties. The Country Review Report is the result of the CNS Review Process and was agreed by consensus by the Country Group.*

## Glossary

A **Challenge** is “a difficult issue for the Contracting Party and may be a demanding undertaking (beyond the day-to-day activities); or a weakness that needs to be remediated.”

A **Suggestion** is “an area for improvement. It is an action needed to improve the implementation of the obligations of the CNS.”

A **Good Practice** is “a new or revised practice, policy or programme that makes a significant contribution to nuclear safety. A Good Practice is one that has been tried and proven by at least one Contracting Party but has not been widely implemented by other Contracting Parties; and is applicable to other Contracting Parties with similar programmes.”

An **Area of Good Performance** is “a practice, policy or programme that is worthwhile to commend and has been undertaken and implemented effectively. An Area of Good Performance is a significant accomplishment for the particular CP although it may have been implemented by other CPs.”

## Executive Summary

Switzerland has 5 nuclear power reactor units, located at 4 different sites:

- Beznau 1 and Beznau 2 : 1130 MWth PWR;
- Muhleberg : 1097 MWth BWR;
- Gösgen : 3002 MWth PWR;
- Leibstadt : 3600 MWth BWR.

Switzerland has 1 research reactor in shutdown and 2 in decommissioning state. One small research reactor (100 Wth) is still in operation. .

3 out of 4 Challenges from the 6<sup>th</sup> Review Meeting have been closed.

The Country Group highlights the following measures to improve safety in Switzerland's national nuclear programme:

- As a result of the events in Fukushima Daiichi, Switzerland has decided to phase out nuclear energy. Therefore, no nuclear new builds are planned. In November 2016, a proposal to limit operational lifetime of the Swiss NPPs to 45 years was rejected by the voters, and in May 2017, the Swiss people will vote on the Energy Strategy 2050
- Since the 6th RM, nine regulatory guidelines have been revised or come into force and ENSI introduced a new emergency classification system, compatible with IAEA GSR Part 7
- Directly after the reactor accidents in TEPCO Fukushima Daiichi on 11 March 2011, ENSI ordered measures for a review of the safety of the Swiss nuclear power plants and these were set out in several formal orders issued by ENSI. The additional reviews covered the in-depth design reassessment of the Swiss NPPs in respect of earthquakes, external flooding and a combination thereof. A review of the coolant supply for the safety and auxiliary systems and the spent fuel pools was also requested.
- The results of ENSI's reviews have confirmed that the Swiss nuclear power plants have a high degree of protection against the effects of earthquakes, flooding and combinations thereof, and that appropriate precautions have been taken against loss of the power supply and the heat sink. ENSI nevertheless specified a series of additional requests for substantial backfitting measures, such as for example that all Swiss NPPs shall have groundwater wells as part of their (bunkered) special emergency systems as alternate cooling water sources for severe accidents, temperature and level measurements for the spent fuel pools (SFPs); etc...
- By the end of 2016, ENSI published a summary report on all activities that have been performed within the framework of the Fukushima Action Plan, thus concluding ENSI's post-Fukushima activities.
- On the basis of the Fukushima Action Plan, ENSI reviewed the existing procedures and measures to determine their effectiveness in protecting drinking water. As a result, a new automatic measuring network for monitoring radioactivity in the river water (URAnet aqua) was installed in 2015.

The Country Group highlights the following results of international peer review missions of Switzerland:

- In April 2015, an IRRS follow-up mission was conducted in Switzerland. The mission concluded that the four recommendations and 16 suggestions for which ENSI was primarily responsible had been implemented but that the Swiss government should give ENSI, as the technical nuclear safety authority, the ability to issue legally binding technical safety requirements and licence conditions on nuclear safety, nuclear security and radiation safety.
- Also, an OSART follow-up mission to the Mühleberg NPP was completed in June 2014.
- Switzerland participated in the European Stress Test and its follow-up activities. Furthermore, in December 2013, Switzerland tabled a proposal to amend Article 18 of the Convention on Nuclear Safety and participated in the ensuing Diplomatic Conference.

Switzerland contributed actively to the development of the Vienna Declaration on Nuclear Safety.

- Switzerland will take part, on a voluntary basis, in the Topical Peer Review Process which will start in 2017 according to the EU Nuclear Safety Directive 2014/87/EURATOM. The first Topical Peer Review will focus on the overall ageing management programs implemented in the NPP as well as on insights gained from specific ageing supervision programs.
- Switzerland will host an IPPAS Mission in 2018.

The Country Group identified the following Challenges for Switzerland:

- **Challenge 1:** Open issues from the IRRS Follow Up Mission in 2015: *“The government should:*
  - *strengthen ENSI’s independent regulatory authority by giving ENSI the ability to issue binding technical safety requirements, licence conditions on nuclear safety, security and radiation protection, and*
  - *strengthen ENSI’s position as the competent, technical authority, by having NSC provide their technical safety input to ENSI solely in an open and transparent manner.”*
- **Challenge 2:** Finalizing the investigations concerning UT indications at Beznau RPV
- **Challenge 3 :** Decommissioning of Mühleberg NPP (see also challenge 2 from 6<sup>th</sup> RM, which remained Open).

In addition the country group identified 1 Suggestion and 5 Areas of Good Performance.

The Country Group concluded that Switzerland:

- Submitted a National Report, and therefore complies with Article 5 and in time following Rule 39 of INFCIRC/573 Rev. 6;
- Attended the 7<sup>th</sup> CNS Review Meeting, and therefore complies with Article 24.1;
- Held a national presentation and answered questions, and therefore complies with Article 20.3.

## 1. Basic Information on Switzerland's Nuclear Programme

Switzerland has 5 nuclear power reactor units, located at 4 different sites:

- Beznau I and Beznau 2 : 1130 MWth PWR;
- Muhleberg : 1097 MWth BWR;
- Gösgen : 3002 MWth PWR;
- Leibstadt : 3600 MWth BWR.

Switzerland has 1 research reactor in shutdown and 2 in decommissioning state. One small research reactor (100 Wth) is still in operation.

## 2. Follow-Up from previous CNS Review Meeting

### 2.1 Challenges

Switzerland provided the following updates on Challenges identified during the 6<sup>th</sup> CNS Review Meeting.

#### **Nuclear phase-out and decommissioning:**

**Challenge 1:** ENSI guideline G17 – Decommissioning of nuclear facilities to be published in 2014.

In April 2014, ENSI brought a new guideline into force that stipulates the requirements for the decommissioning of nuclear installations in Switzerland (ENSI-G17). It also specifies the detailed requirements for the application documents regarding decommissioning. The guideline is in accordance with the Western European Nuclear Regulators' Association (WENRA) Safety Reference Levels (SRL) and the respective IAEA Safety Standards on decommissioning.

Follow Up Status: Closed.

**Challenge 2:** First permanent shutdown of a Swiss commercial power reactor (Mühleberg NPP) in 2019.

During the preparation for the decommissioning of Mühleberg NPP, the Swiss Confederation has established a cross-institutional monitoring group. All stakeholders are members of this group: Swiss Federal Office of Energy, (SFOE), the Federal Office for the Environment (FOEN), the Canton of Bern, ENSI and BKW. Three subgroups were formed with respect to technical aspects, legal procedure and communication. In March 2015, the communication subgroup organised three public events near Mühleberg NPP. In total, more than 800 people visited these events and showed much interest in the decommissioning plan, funding, costs, and waste treatment and disposal. In April 2016, these public events were repeated.

The requirements for the final decommissioning plan are described in the Nuclear Energy Act, the Nuclear Energy Ordinance and in ENSI's technical guideline G17.

The submitted documents will be reviewed by the authorities. Based on the authorities' advisory opinions, DETEC will issue the decommissioning order that regulates the decommissioning process. BKW expects the decommissioning order in mid-2018 – more than one year before final shutdown. This approach should ensure that any potential appeal procedures can be finalised before the plant's planned shutdown on 20 December 2019.

ENSI published guideline G-17 in April 2014, which stipulates the requirements for the decommissioning of nuclear installations in Switzerland. It also specifies the detailed requirements for the application documents regarding decommissioning. The operator of Mühleberg NPP submitted the decommissioning concept in December 2015. The concept is currently being reviewed and the report with the authorities' advisory opinion is expected to be submitted to DETEC in the second half of 2017. The preparations for the decommissioning of Mühleberg NPP are well under way but it will take years until the plant can be released from the supervision required by nuclear energy legislation.

Follow Up Status: Since this is still an on-going activity, this challenge remains Open.

**Challenge 3:** Backfittings for remaining operating time period of Mühleberg NPP.

In late 2013, the licence holder BKW decided to decommission Mühleberg NPP in 2019 for entrepreneurial reasons and cancelled the planned backfitting programme for long term operation (LTO). The Inspectorate issued a formal order to establish binding conditions for operation until 2019, requesting alternative measures to be implemented. On this basis, the licence holder submitted in 2014 an alternative backfitting programme, which was evaluated by the Inspectorate. The following main backfitting measures are planned or have already been installed:

- In October 2012, an IAEA OSART mission to Mühleberg NPP took place. The review team acknowledged the fast and thorough response to recent significant external operating experience events, including important plant modifications (see Article 19).
- In 2015 the licence holder finished the installation of the new emergency system to feed cooling water from the hilltop reservoir into the emergency cooling water system. The backfitting measure also included hose connectors inside the bunkered emergency building to ensure an additional accident management cooling water supply with mobile pumps.
- In 2015, Mühleberg NPP completed backfitting measures to reduce the internal flooding hazard by installing bypass lines with flow limiter, check valves and orifices into the piping of the RCIC system, the CRD system, the auxiliary condensate system, and the firewater system. The plant also performed backfitting measures to reduce fire hazards in the reactor building.
- In 2016, Mühleberg NPP backfitted an additional, earthquake and flood resistant single line for emergency water injection into the reactor pressure vessel. The system is located in a new building separate from other safety systems.
- A new emergency cooling system for the spent fuel pool was installed by the end of 2016. Water supply is ensured from the bunkered cooling water system and from the hilltop reservoir. In 2020, the emergency cooling system for the spent fuel pool will be converted into a safety system.
- The emergency water injection system into the RPV as well as the emergency cooling system for the SFP have been installed in accordance to the timetable mentioned above.

Follow Up Status: Closed.

**Challenge 4:** Information on staff situation, their competence and motivation for the remaining operating time of Mühleberg NPP

The decision to shut down the Mühleberg NPP at the end of 2019 has not led to a fall in staff numbers at Mühleberg. The plant has developed a concept that ensures that the Mühleberg staff have a perspective for their work life after final shutdown.

Follow Up Status: Closed.

## 2.2 Suggestions

No suggestions were identified during the 6th CNS Review Meeting for Switzerland.

## 3. Measures to improve safety

### 3.1 Changes to the regulatory framework and the national nuclear programme

Since the last Review Meeting, the Country Group took note of the following changes to the regulatory framework and the national nuclear programme:

- As a result of the events in Fukushima Daiichi, Switzerland has decided to phase out nuclear energy. Therefore, no nuclear new builds are planned. The nuclear phase-out is being

discussed as part of the parliamentary debate on the Energy Strategy 2050, which will require a partial revision of the Nuclear Energy Act. Following these discussions, both chambers of the Parliament have decided to refrain from restricting the operational lifetimes of the Swiss nuclear power plants. Beyond that, the Parliament also rejected a proposition by which the operators of NPPs have to submit LTO concepts to ENSI before the completion of 40 years of operation (and then again on a 10-year basis).

- In November 2016, a proposal to limit operational lifetime of the Swiss NPPs to 45 years was rejected by the voters, and in May 2017, the Swiss people will vote on the Energy Strategy 2050.
- The Radiological Protection Ordinance is currently under revision, also to harmonise with the new European Basic Safety Standards Directive (2013/59/Euratom) and the IAEA Safety Standards. It is expected that the revised Ordinance will come into force by 1 January 2018.
- Since the last national report, nine regulatory guidelines have been revised or come into force.
- In 2016, ENSI introduced a new emergency classification system, compatible with IAEA GSR Part 7.
- ENSI reviewed the proposal for site selection for geological repositories and accepted two sites proposed by Nagra and rejected the exclusion of a third site. The final choice however will take several years and is expected to be done by 2030.
- ENSI continued its work on the oversight culture and identified 15 measures for improvement. The report of this project is available on the website of ENSI.

### 3.2 Safety improvements for existing nuclear power plants

The Country Group took note of the following implemented and planned safety measures for existing nuclear power plants in Switzerland:

- Directly after the reactor accidents in TEPCO Fukushima Daiichi on 11 March 2011, ENSI ordered measures for a review of the safety of the Swiss nuclear power plants. The measures were set out in several formal orders issued by ENSI. The immediate measures comprised the establishment of a joint external emergency storage facility (Reitnau storage) for the Swiss nuclear power plants, including the necessary plant-specific connections for accident management (AM) equipment, and the backfitting of feeds for the injection of water into the spent fuel pools from the outside. The additional reviews covered the in-depth design reassessment of the Swiss NPPs in respect of earthquakes, external flooding and a combination thereof. A review of the coolant supply for the safety and auxiliary systems and the spent fuel pools was also requested.
- In parallel with these investigations by the operators, ENSI carried out topical inspections on various topics such as the existing cooling systems for the spent fuel pools, protection against external flooding and the systems for filtered containment venting, the plants' strategies in case of a prolonged loss of the power supply, the processes and documented requirements for assessing external events, and the emergency rooms available in the Swiss plants, and the radiation protection equipment available on site.
- The results of ENSI's reviews have confirmed that the Swiss nuclear power plants have a high degree of protection against the effects of earthquakes, flooding and combinations thereof, and that appropriate precautions have been taken against loss of the power supply and the heat sink. ENSI nevertheless specified a series of additional requests for substantial backfitting measures, such as for example that all Swiss NPPs shall have groundwater wells as part of their (bunkered) special emergency systems as alternate cooling water sources for severe accidents, temperature and level measurements for the spent fuel pools (SFPs); etc.
- The processing and implementation of the identified points were updated annually in the Fukushima Action Plan. The last Fukushima Action Plan 6 was released in February 2015 and most of the identified checkpoints were implemented by the end of 2015. By the end of 2016, ENSI published a summary report on all activities that have been performed within the framework of the Fukushima Action Plan, thus concluding ENSI's post-Fukushima activities.



- Independent from the reviews initiated after Fukushima the hydroelectric emergency power supply of the Beznau NPP was replaced in 2015 and 2016 by a state-of-the-art, seismically proofed emergency diesel generator system. In consequence, each unit of the Beznau NPP consists today of two new emergency diesel generators and one special emergency diesel generator which was backfitted as part of the “NANO” project in 1990. Furthermore, the Gösgen NPP decided in 2015 to enhance the seismic robustness of the existing bunkered special emergency shutdown and heat removal system in the following years. The aim of the project is to assure core cooling even in the case of very high peak ground accelerations up to 0.6 g in order to gain sufficient safety margins against the new seismic hazard issued by ENSI in 2016.
- On the basis of the Fukushima Action Plan, ENSI reviewed the existing procedures and measures to determine their effectiveness in protecting drinking water. As a result, a new automatic measuring network for monitoring radioactivity in the river water (URAnet aqua) was installed in 2015. The network consists of five probes for monitoring the gamma activity in the river water downstream of the Swiss NPPs. The daily average values are available at [www.radenviro.ch](http://www.radenviro.ch).
- Switzerland presented an extensive overview of the safety improvements of the Gösgen NPP following the Fukushima-Daiichi accident and in the light of long term operation. The new design basis for natural hazards lead to several actions to cope with these new requirements, such as seismic upgrades of various equipment, external flood protection, extension of the bunkered special emergency system, etc.
- Switzerland presented the investigations and actions taken in response of two important events : the dryout indications of Leibstadt NPP and the UT flaw indications of Beznau 1 NPP.

### 3.3 Response to international peer review missions

The Country Group took note of the following implemented or planned measures in response to the results of international peer review missions:

- In April 2015, an IRRS follow-up mission was conducted in Switzerland. The mission concluded that the four recommendations and 16 suggestions for which ENSI was primarily responsible had been implemented but that the Swiss government should give ENSI, as the technical nuclear safety authority, the ability to issue legally binding technical safety requirements and licence conditions on nuclear safety, nuclear security and radiation safety.
- Also, an OSART follow-up mission to the Mühleberg NPP was completed in June 2014. In February 2016, ENSI concluded that all recommendations (i.e. those that were considered as “satisfactory progress”) had been solved.
- Switzerland participated in the European Stress Test and its follow-up activities. Furthermore, in December 2013, Switzerland tabled a proposal to amend Article 18 of the Convention on Nuclear Safety and participated in the ensuing Diplomatic Conference. Switzerland contributed actively to the development of the Vienna Declaration on Nuclear Safety.
- Switzerland will take part, on a voluntary basis, in the Topical Peer Review Process which will start in 2017 according to the EU Nuclear Safety Directive 2014/87/EURATOM. The first Topical Peer Review will focus on the overall ageing management programs implemented in the NPP as well as on insights gained from specific ageing supervision programs.
- Switzerland will host an IPPAS Mission in 2018.

## 4. Implementation of the Vienna Declaration on Nuclear Safety (VDNS)

On 9 February 2015, the Contracting Parties adopted INFCIRC 872, “Vienna Declaration on Nuclear Safety”, which is a commitment to certain principles to guide them in the implementation of the CNS’ objective to prevent accidents and mitigate their radiological consequences, should they occur. The Contracting Parties agreed to discuss the principles of the Vienna Declaration on Nuclear Safety in their National Reports and in the subsequent Review Meetings.



#### 4.1 Implementation of the VDNS's principle on new nuclear power plants

The first principle of the VDNS is:

“New nuclear power plants are to be designed, sited, and constructed, consistent with the objective of preventing accidents in the commissioning and operation and, should an accident occur, mitigating possible releases of radionuclides causing long-term off site contamination and avoiding early radioactive releases or radioactive releases large enough to require long-term protective measures and actions.”

The principles regarding design and construction of nuclear power plants are enshrined in the Nuclear Energy Act, Nuclear Energy Ordinance and ENSI guidelines.

Switzerland defines a new nuclear power plant in the following way: : A new nuclear power plant is a plant under construction without a valid operation licence. In 2011, the Swiss government decided to phase out nuclear power in Switzerland. The Nuclear Energy Act (NEA) which is currently under revision, will exclude the construction of new NPPs.

Switzerland reports, that its national requirements and regulation incorporate appropriate technical criteria and standards to address these objectives.

The objective of preventing accidents in the commissioning and operation of new nuclear power plants is addressed by:

- Art.5, §1 of the Nuclear Energy Act stipulates that «preventive and protective measures must be taken in accordance with internationally accepted principles» for the design, construction and operation of nuclear installations.
- The Nuclear Energy Ordinance describes the minimal requirements of Art. 5 of the Nuclear Energy Act, like for example : the single failure criterion, the principles of redundancy, diversity, sufficient margins to be considered in the design and construction of components, protection against internal and external hazards.

The objective of mitigating against possible releases of radionuclides causing long-term offsite contamination and avoiding early radioactive releases or radioactive releases large enough to require long-term protective measures and actions is addressed by:

- Art.4, §1 of the Nuclear Energy Act stipulates that “Special care must be taken to prevent the release of impermissible quantities of radioactive substances and to protect humans against impermissible levels of radiation during normal operation and accidents”

The Country Group made no additional observations.

#### 4.2 Implementation of the VDNS's principle on existing nuclear power plants

The second principle of the VDNS is:

“ Comprehensive and systematic safety assessments are to be carried out periodically and regularly for existing installations throughout their lifetime in order to identify safety improvements that are oriented to meet the above objective. Reasonably practicable or achievable safety improvements are to be implemented in a timely manner.”

Switzerland reports, that its national requirements and regulation address the application of the principles and safety objectives of the Vienna Declaration to existing NPPs in the following way

- require the performance of periodic comprehensive and systematic safety assessments of existing NPPs to be performed at least every 10 years. Within these PSRs, potential improvements are identified and –as appropriate- implemented.
- require reasonably practicable/achievable safety improvements to be implemented in a timely manner. The legal requirements for backfitting existing NPPs are analogous to the provisions for new-builds in their structure (minimum requirements, dynamic requirement, precautionary principle). If these criteria are not met, the plant has to be taken out of service and backfitted.

- require reasonably practicable/achievable safety improvements to be implemented in a timely manner. The legal requirements for backfitting existing NPPs are analogous to the provisions for new-builds in their structure (minimum requirements, dynamic requirement, precautionary principle). If these criteria are not met, the plant has to be taken out of service and backfitted.

The Country Group made no additional observations.

#### **4.3 Taking into account IAEA Safety Standards and other international Good Practices in the national requirements and regulations addressing the VDNS principles**

Switzerland reports that its national requirements and regulation take into account the relevant IAEA Safety Standards throughout the life-time of a nuclear power plant, by:

- Stipulation in Article 5 of the Nuclear Energy Act that «When designing, constructing and operating nuclear installations, preventive and protective measures must be taken in accordance with internationally accepted principles.» Consequently, internationally accepted principles must be taken into account even by the minimal requirements for new NPPs. The relevant IAEA safety standards are being incorporated into the Swiss national requirements and regulations through the above-mentioned dynamic requirement, as the IAEA safety standards essentially are being used as definition for the latest state of the art of science and technology. Other good practices are taken into account through the precautionary principle.

Furthermore, Switzerland reports that its national requirements and regulation take into account other international Good Practice throughout the life-time of a nuclear power plant, such as:

- Swiss legislation requires continuous improvement of safety in nuclear power plants. Whenever new findings are known, which would help to achieve a further increase in safety, the plant operators are obliged to implement appropriate backfitting measures. These principles are enshrined through Article 22, clause 2, letter g of the Nuclear Energy Act. The licence holder shall: «backfit the installation to the necessary extent that it is in keeping with operational experience and the current state of backfitting technology, and beyond insofar as further upgrading is appropriate and results in a further reduction of risk to humans and the environment».

The Country Group made no additional observations:

#### **4.4 Issues faced by Switzerland in the implementation of the VDNS**

Switzerland does not expect to face any issues in applying the Vienna Declaration principles and safety objectives to its existing fleet or new builds of nuclear power plants, since all principles are already firmly established in the regulations and are being applied by the NPPs:

## **5. Results of the Review**

### **5.1 General Quality of the National Report**

Contracting Parties and officers were invited to provide general comments on the Switzerland' implementation of the obligations of the CNS (e.g., report submitted on time), addressed all articles, addressed the Vienna Declaration on Nuclear Safety, and addressed all Challenges and Fukushima lessons learned, the general quality of its National Report, transparency issues, and the compliance with the CNS guidance documents and special peer review topics identified in the previous CNS Review Meeting or specified by the President of the CNS (reporting on the management of spent fuel on site and radioactive waste on site - especially for CPs not signatories of the Joint Convention and if relevant on the use of the templates for articles 17 and 18).

With regards to the general quality of the National Report and transparency issues, the members of the Country Group made the following observations:

- The Report is qualified to be comprehensive and reader friendly

With regards to the compliance with the requirements of the CNS and its Guidelines, the members

of the Country Group made the following observations:

- The Report was submitted on time.
- The content and structure of Switzerland's National Report complies with the CNS guidance.
- The directions of the Summary Report of 6<sup>th</sup> Review Meeting were taken into consideration.
- The directions given by the President of the 7<sup>th</sup> Review Meeting were followed.

## 5.2 Participation in the Review Process

With regards to Switzerland's participation in the Review process, the members of the Country Group made the following observations. Switzerland

- posted 377 questions to Contracting Parties;
- delivered answers to the questions of Contracting Parties on time;
- delivered its national presentation.

## 5.3 Challenges

The Country Group identified the following Challenge(s) for Switzerland.

- **Challenge 1:** Open issues from the IRRS Follow Up Mission in 2015: *"The government should:*
  - *strengthen ENSI's independent regulatory authority by giving ENSI the ability to issue binding technical safety requirements, licence conditions on nuclear safety, security and radiation protection, and*
  - *strengthen ENSI's position as the competent, technical authority, by having NSC provide their technical safety input to ENSI solely in an open and transparent manner."*
- **Challenge 2:** Finalizing the investigations concerning UT indications at Beznau RPV
- **Challenge 3 :** Decommissioning of Mühleberg NPP (see also challenge 2 from 6<sup>th</sup> RM, which remained Open).

## 5.4 Suggestions

The Country Group identified the following Suggestion(s) for Switzerland.

- **Suggestion 1:** Report on the progress of the root cause analysis concerning the dry out issue of the Leibstadt NPP during the 8<sup>th</sup> RM.

## 5.5 Good Practices and Area of Good Performance

During the peer review of Switzerland's National Report, the Contracting Parties were invited to recommend Good Practices and to highlight Area of Good Performance.

The Country Group identified no Good Practices:

The following Area of Good Performance of Switzerland were commended by the Country Group:

- **Area of Good Performance 1:** The work done by Switzerland with neighbouring countries, in particular Germany, on agreeing plans to ensure the same level of protection for the public and the environment on both sides of the border in the event of a nuclear emergency.
- **Area of Good Performance 2:** the Quality Management System in Switzerland and in particular the recent achievement of Accreditation to ISO 17020 of the Inspectorate for inspection activities.
- **Area of Good Performance 3:** Switzerland will voluntarily participate in the EU topical peer review.
- **Area of Good Performance 4:** After Fukushima, Switzerland installed an automatic monitoring network to measure the activity in the river water. The system is also linked to an alarming system for the water providers.
- **Area of Good Performance 5:** In view of LTO and the newly defined seismic hazards, Gösgen NPP has initiated an extensive backfitting project to enhance the seismic robustness of the special emergency systems

## **6 Fulfilment of CNS Review Requirements**

The Country Group concluded that Switzerland:

- Submitted a National Report, and therefore complies with Article 5 and in time following Rule 39 of INFCIRC/573 Rev. 6;
- Attended the 7<sup>th</sup> CNS Review Meeting, and therefore complies with Article 24.1;
- Held a national presentation and answered questions, and therefore complies with Article 20.3.