The Convention on Nuclear Safety 5th Review Meeting of the Contracting Parties

Questions Posted To Austria in 2011

Q.No	Country	Article	Ref. in National Report
1	Germany	General	no
Question/ Comment	Austria has updated its National Report. Unfortunately, the structure of the report does not follow the Guidelines INFCIRC/572 Rev. 3. Structuring according to the sub-Articles of the Convention could make it easier to review.		
Answer	Austria will, as far as this is reasonable for a country with no nuclear programme according to the Convention, structure future reports in line with INFCIRC 572 rev. 3		
Q.No	Country	Article	Ref. in National Report
2	Germany	General	no
Question/ Comment	Austria reported implementation of the Convention referring to its safety provision of the TRIGA research reactor. Germany appreciates this reporting practice.		
Answer	Thank you		
Q.No	Country	Article	Ref. in National Report
3	Ireland	General	N/A
Question/ Comment	Ireland would like to thank Austria for preparing a comprehensive national report on the implementation of its obligations under the CNS.		
Answer	Thank you		
Q.No	Country	Article	Ref. in National Report
4	Hungary	Article 6	6.1, p.2
Question/ Comment	What percentage of the spent fuel storage is free?		
Answer	The spent fuel storage of the TRIGA Vienna is capable to store 168 spent fuel elements, presently only 8 fuel elements are stored, so 95% of it's capacity is free		
Q.No	Country	Article	Ref. in National Report
5	United Arab Emirates	Article 7.1	3
Question/ Comment	In the late 1970's, Austrians voted to never start operation of the Zwentendorf nuclear power plant. The adverse impacts of the Chernobyl nuclear accident in 1986 served to reinforce this decision. Please clarify what were the driving concerns in 1978 that caused the abandonment of nuclear power plants?		
Answer	The 1978 vote was held after a debate among all political stakeholders including the then new environmentalist movement. The driving concerns comprised among many others the unsolved situation of spent fuel and radioactive waste, and – after the Three Mile island accident –general and plant specific nuclear safety concerns.		
Q.No	Country	Article	Ref. in National Report
6	United Arab Emirates	Article 7.1	6
Question/ Comment	Who actually issues fines? Who has authority to issue a shutdown order to avert imminent danger?		
Answer	According to the Austrian Radiation Protection Act, the competent authority has the obligation to prohibit the operation of installations in cases of imminent danger and to arrange all means necessary including interim injunctions to avoid any		

danger. In addition, fines may also be issued. The competent authority for the Austrian research reactor is the Federal Ministry for Science and Research in accordance with the BMLFUW.

Q.No	Country	Article	Ref. in National Report
7	United Arab Emirates	Article 7.1	7

Question/ Comment: Austria is to be commended for requiring reporting of possession of radioactive materials or of radiation emitting equipment exempt from licensing. How are exempt radioactive materials or of radiation emitting equipment defined?

Answer: Exempted radioactive material is material where either the activity quantity or the activity concentration of the relevant radionuclide does not exceed legally binding exemption levels. These exemption levels are listed in the General Radiation Protection Ordinance. Radiation emitting equipment is exempted from authorisation if, in normal operating conditions, it does not cause a dose rate exceeding 1 µSv/h at a distance of 0,1 m from any accessible surface of the apparatus.

Q.No	Country	Article	Ref. in National Report
8	United Arab Emirates	Article 7.1	7

Question/ Comment: What are legally binding exemption levels?

Answer: A practice may be exempted from the requirement to authorisation without further consideration, if either the activity quantity or the activity concentration of the relevant radionuclide does not exceed legally binding exemption levels which are listed in the General Radiation Protection Ordinance. These exemption levels are specified in the Council Directive 96/29/Euratom which lays down the basic European safety standards and which has been transposed into national law.

Q.No	Country	Article	Ref. in National Report
9	Ireland	Article 7.2.2	Page 6

Question/ Comment: The report states that “installations with higher potential risk need to be licensed prior to the start of construction…”
What criteria are used to determine those activities that require this form of licensing and what typical facilities does it apply to?

Answer: In case of need of structural measures for assuring radiation protection a construction license according to Art. 5 Radiation Protection Act is required. Art. 5 applies to nuclear facilities or facilities for handling unsealed sources, for example.

Q.No	Country	Article	Ref. in National Report
10	United Arab Emirates	Article 7.2.2	4

Question/ Comment: In bullet three, what are the specific regulations concerning the dose passport for outside workers?

Answer: The regulations concerning the dose passport include regulations on the content and the form and on the way how to keep the records in connection with the passport.

Q.No	Country	Article	Ref. in National Report
11	United Arab Emirates	Article 7.2.2	4

Question/ Comment: What is considered a high-activity radioactive source?

Answer: A high-activity radioactive source comprises a sealed source containing a radionuclide whose activity at the time of manufacture or, if unknown, of the first placing on the market is equal to or exceeds the relevant activity level specified in the General Radiation Protection Ordinance. The activity levels are based on the

Council Directive 2003/122/Euratom on the control of high-activity sealed radioactive sources and orphan sources which has been transposed into national law.

Q.No	Country	Article	Ref. in National Report
12	United Arab Emirates	Article 7.2.2	4

Question/ Comment: Does the General Radiation Protection Ordinance address licensing of operators? If not, is this addressed elsewhere?

Answer: The process of licensing is laid down in the Radiation Protection Act where the relevant provisions state that a license is required for

- the construction and test, operation or change of purpose, nature and size of any installation for the handling of radioactive material and for the use of radiation emitting devices
- any activity involving radioactive materials exceeding the exemption levels, i.e. work activities with radioactive materials: the extraction, production, storage, carriage, delivery, supply, import, export, processing, handling or disposal of radioactive materials or any other activity resulting in the emission of radiation and the possession and operation of radiation-emitting devices.

Q.No	Country	Article	Ref. in National Report
13	Ireland	Article 7.2.3	Page 6

Question/ Comment: The report refers to regular inspections of licensed installations. What is the typical inspection frequency for licensed facilities and how are those inspections prioritised?

Answer: Inspection frequency by the Regulatory Body is once a year, internal inspections follow a detailed reinspection plan authorized by the Regulatory Body.

Q.No	Country	Article	Ref. in National Report
14	Ireland	Article 7.2.3	Page 6

Question/ Comment: What schemes has the regulatory authority in place to ensure that inspectors' training is kept up to date to deal with the variety of facilities that they have to inspect?

Answer: Expertise and skills are kept up to date by periodical conferences, bilateral exchange of opinions and administrative edicts. Experts from the provincial government also give support to district authorities for specific questions. In addition, the district authorities usually approach the competent ministries if questions arise in the execution of any regulations.

Q.No	Country	Article	Ref. in National Report
15	Canada	Article 8.1	9

Question/ Comment: Given that the responsibilities for regulatory activities are shared amongst various federal and regional authorities, how are communications managed between the authorities and how do the various authorities ensure a common and coordinated approach to regulatory oversight of nuclear matters?

Answer: Austria ensures the cooperation in practice between federal and regional authorities by periodical conferences, bilateral exchange of opinions and administrative edicts. Experts from the provincial government also give support to district authorities for specific questions. In addition, the district authorities usually approach the competent ministries if questions arise in the execution of any regulations.

Q.No	Country	Article	Ref. in National Report
16	Germany	Article 8.1	Article 8, page 8-10

Question/ Austria reported similar to the previous report on the complex structure of

Comment responsible authorities. This issue was also discussed at the 4th Review Meeting. In one response to a question posted in 2008 Austria stated: "Due to historical reasons at the beginning of radiation protection legislation in Austria, the competencies have been widely split. With the amendments of the radiation protection act in 2002 and 2004 these split competences were streamlined but still there are different ministries involved."
Can Austria provide some details on the manpower involved in the related activities of the regulatory bodies? Are there plans to reorganize responsibilities into a more concentrated organisation?

Answer In total 3 staff members at the following authorities: BMWF and BMLFUW. In addition three university professors are assigned to the inspection of the TRIGA reactor by the Regulatory Authorities.

Q.No	Country	Article	Ref. in National Report
17	Greece	Article 8.1	page 8

Question/ Comment Could Austria provide the number of inspectors assigned by the regulatory authorities to the inspection of the TRIGA reactor? How the regulatory authorities ensure the maintenance of the competence of the regulatory staff?

Answer Three university professors are assigned to the inspection of the TRIGA reactor by the Regulatory Authorities, competence of the Regulatory Authority is assured by participation at international conferences, bilateral contact and regular meeting with other authorities.

Q.No	Country	Article	Ref. in National Report
18	Hungary	Article 8.1	Art. 8, p.8

Question/ Comment How many inspectors work at the competent authorities? How are they trained?

Answer As specified in the report, only the competent authorities for the TRIGA research reactor are listed: In total 3 staff members at the following authorities: BMWF and BMLFUW. Training by participation at international conferences, bilateral contact and regular meeting with other authorities.

Q.No	Country	Article	Ref. in National Report
19	Ireland	Article 8.1	Pages 8 - 10

Question/ Comment The section indicates that a number of bodies have regulatory responsibilities for different aspects of regulation.
How is the work of these different bodies coordinated to ensure that there are no conflicting requirements or duplication of effort?

Answer Regulations under the law on radiation protection need the consent of involved ministries. Regulatory activities, notably the inspections under §17 of the General Radiation Protection Ordinance, are with participation by BMLFUW and thus coordinated by the BMLFUW regulator to guarantee consistent application of rules and procedures. Established practise is very close co-operation between all organisational units involved. In addition a nuclear-coordination unit has been established in the Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMLFUW) responsible for “general affairs of nuclear-co-ordination” on a more technical and political basis.

Q.No	Country	Article	Ref. in National Report
20	Singapore	Article 8.1	Pg 8

Question/ Comment Article 8 states that the competent authorities for the TRIGA Reactor are the Federal Ministry of Science and Research and the Federal Ministry of Agriculture,

	Forestry, Environment and Water Management. Separately, the competent authority for the physical protection of nuclear material and facilities in use is the Federal Ministry of Interior. Please elaborate on the manpower breakdown (from these various ministries) involved in regulatory oversight of the research reactor?
Answer	The manpower breakdown of nuclear safety inspectors for the TRIGA research reactor is 3 staff at the authorities in BMWF and BMLFUW. Physical Protection requirements are generally distinct from those regarding nuclear safety. Inspections according to the law on radiation protection do not cover Physical Protection. Regulatory oversight with regard to Physical Protection is conducted by two staff in the Federal Ministry of the Interior.

Q.No	Country	Article	Ref. in National Report
21	United States of America	Article 8.1	8.1
Question/ Comment	Austria has many ministries that are involved in different aspects of nuclear safety. Are there established practices for the ministries to communicate or work together if ever needed?		
Answer	Regulations under the law on radiation protection need the consent of involved ministries. Regulatory activities, notably the inspections under §17 of the General Radiation Protection Ordinance are with participation by BMLFUW and thus coordinated by the BMLFUW regulator to guarantee consistent application of rules and procedures. Established practise is very close co-operation between all organisational units involved. In addition a nuclear-coordination unit has been established in the Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMLFUW) responsible for “general affairs of nuclear-co-ordination” on a more technical and political basis.		

Q.No	Country	Article	Ref. in National Report
22	Ireland	Article 9	Pages 11 and 12
Question/ Comment	The section sets out the responsibilities of the licence holder. What powers have the regulatory authority to enforce these responsibilities and what penalties can be applied?		
Answer	According to the Austrian Radiation Protection Act, the competent authority is obliged to prohibit operation of installations in cases of imminent danger and to arrange all means necessary including interim injunctions to avoid any danger. According to Art. 39 of the Austrian Radiation Protection Act administrative fines are to be issued in cases of the breach of any radiation protection regulation. In certain cases, also criminal law regulations can apply.		

Q.No	Country	Article	Ref. in National Report
23	United Arab Emirates	Article 10	12
Question/ Comment	What is the process for evaluating changes to the TRIGA prior to implementing? What was the evaluation process for changing to a digital I&C system with an analogue backup? Was regulatory pre-approval required?		
Answer	Changes to the TRIGA such as the renewal of the I&C system is evaluated by an independent government assigned expert who may request modifications. Only upon his agreement safety related changes are authorized.		

Q.No	Country	Article	Ref. in National Report
24	United Arab Emirates	Article 11.1	13

Question/ Comment: In addition to the overlap in management, were any particular programs or processes used to manage the knowledge transfer?

Answer: Besides an overlap of 8 years in TRIGA reactor management the retired former reactor manager has been employed as consultant and is available for all reactor related matter. The long-term knowledge transfer is assured.

Q.No	Country	Article	Ref. in National Report
25	United Arab Emirates	Article 11.1	13

Question/ Comment: How did the funding estimates for decommissioning compare to the expenditures that were actually required for the decommissioning of the ASTRA and ARGONAUT reactors in 2006?

Answer: ASTRA (Seibersdorf): Decommissioning costs in 2006 were about 15% higher than estimated in year 1999. The employment of qualified dismantling staff was by far the dominant cost factor (70%); approx. 20% of the total were costs for conditioning and storage of radioactive waste.
ARGONAUT (Graz): Decommissioning costs for this ultra low power reactor have arisen mainly (~90 %) from shipment of the nearly non-irradiated reactor fuel back to the United States. Due to the recently extremely extended safety requirements the factual shipping costs in the year 2005 were much higher than planned; therefore the original funding turned out to be inadequate.

Q.No	Country	Article	Ref. in National Report
26	Hungary	Article 11.2	Art.11, p.13

Question/ Comment: How many workers are employed at the reactor management? What is now the average age of the personnel?

Answer: The reactor staff consists of two professionals and two technicians. For a reactor schedule Mo-Fr from 9-16h this is sufficient. As backup two more professionals with reactor operator's license are available. The overall average age is 48 years.

Q.No	Country	Article	Ref. in National Report
27	United Arab Emirates	Article 12	13

Question/ Comment: It is impressive that in addition to self assessment of log book entries, 4500 log book entries from a recent IAEA conference on human factors were considered. What were some of the significant improvements in organization and operation?

Answer: The 4500 log book entries included every minor event occurring in 47 years. The breakdown in subsystems clearly indicated failure trends which now lead to a more elaborated preventive maintenance.

Q.No	Country	Article	Ref. in National Report
28	Germany	Article 14.1	13

Question/ Comment: Are there required reports demonstrating the safety of the research reactor at regular intervals?

Answer: Updated reports are required every year.

Q.No	Country	Article	Ref. in National Report
29	Czech Republic	Article 14.2	Page 13

Question/ Comment: What kind of safety analysis is included in the safety analysis report of the TRIGA Mark II research reactor? Are there any safety guide specifying detailed requirements on the safety analysis in the legal framework?

Answer: The recently updated SAR includes the evaluation of 3 major accidents such as destruction of one fuel element in the pool, destruction of all fuel elements in the

pool and destruction of all fuel elements including destruction of the pool (loss of coolant).

Q.No	Country	Article	Ref. in National Report
30	Canada	Article 16.1	16

Question/ Comment: Can you provide more details on the outcome of the emergency exercises that were conducted during the reporting period and elaborate on the measures that were taken to resolve the major deficiencies that were identified?

Answer: In the following, the main exercises with the participation of Austria and their outcomes including measures for improvement since the last CNS Review meeting are listed:

- In the **IAEA-CONVEX 3 Exercise (July 2008)** an accident at the Mexican NPP Laguna Verde was assumed. Despite the fact that Austria was not directly affected by the accident the impact on tourists and Austrians living in Mexico as well as possible problems with monitoring contaminated goods were discussed in the exercise. A closer cooperation between the Austrian Ministry of Foreign Affairs responsible for travel warnings and the Austrian Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMLFUW) responsible for the evaluation of the situation and - in cooperation with the Austrian Federal Ministry of Health – for the decisions on counter measures in case of radiological emergencies was one of the outcomes of the exercise. The scenario of NPP accidents without direct consequences to Austria were also taken into account in the updates of Austrian emergency plans.
- The **IAEA CONVEX 2d Exercise (August 2009)** which focused on the activation of the IAEA Response Assistance Network (RANET) and requests for assistance showed some shortcomings in deciding on assistance in case of radiological emergency. The exercise outcome and the discussions on shortcomings and possible improvements have also triggered the Austrian membership in the IAEA RANET since 2010.
- The **ECURIE Level 3 Exercises (November 2009)** assumed a contamination of a Greek airport in island Corfu: Training with ECURIE system and recommendations for Austrian tourists were topics of the exercises
- The main outcome of **ECURIE Level 3 Exercise (July 2010)**, starting with an incident at German NPP Brokdorf, were measures to optimise the structure of crisis staff and procedures at the Austria competent authority (Austrian Federal Ministry of Agriculture, Forestry, Environment and Water Management)
- Austria also participates in **regular bilateral exercises** with neighbouring countries such as Hungary, Czech Republic, Switzerland and Germany. Topics of these bilateral exercises were the exchange of relevant data and information in case of emergencies, the comparison of decision support tools used in the early phase and the discussion on harmonisation of counter measures in case of trans-boundary impacts. The bilateral exercises in neighbouring countries also facilitate a deeper mutual understanding of procedures and responsibilities in case of a nuclear or radiological emergency in the neighbouring countries.

Exercises at different levels in Austria created inputs which were taken into

account by updating emergency plans in Austria and training the intervention personal and first responders

Q.No	Country	Article	Ref. in National Report
31	Hungary	Article 16.1	16.1, p.16

Question/ Comment: "Several types of emergency exercises on international, bilateral and local level help to improve the emergency preparedness system and keep the emergency personnel trained. A specific goal for the next exercises is to test the new emergency plans."

Q: What types of exercises are carried out in Austria? Do you focus on nuclear accidents, or on radiological accidents and incidents?

Answer: Since the last CNS meeting Austria has participated in all CONVEX Level 3 and ECURIE Level 3 exercises. In addition, Austria regularly participated in exercises on a bilateral level with most of the neighbouring countries (especially Switzerland, Germany, Czech Republic and Hungary). The focus of these exercises was the exchange of relevant data and information in case of emergencies, the comparison of decision support tools used in the early phase and the discussion and possible harmonisation of counter measures in case of trans-boundary impacts. Acting as observers at national exercises in neighbouring countries facilitated a deeper understanding of procedures and responsibilities in case of a nuclear or radiological emergency in these countries. In Austria several exercises at different levels have been performed since the last CNS meeting: Typical exercises are exercises at the level of Austrian Provinces which focus on the implementation of counter measures and the cooperation with first responders and the competent authorities at the federal state level or field exercises with intervention teams and first responders.

The scenarios which were exercised in Austria in the past include large scale contamination after a NPP accident, contamination after transport accidents in Austria, accidents with high active sources (release after fire) and radiological terror (“dirty bomb”). Due to the updated emergency plans in Austria all scenarios considered in these plans have to be exercised on a regular basis. These scenarios include

- NPP accidents with direct or indirect consequences for Austria (considering also impacts on travelling, import control for contaminated products, etc.)
- Satellite re-entry with radioactive inventory
- Accidents in Austrian nuclear or waste storage facilities
- Accidents with high active sources in Austria (transport accidents, lost/stolen sources, etc.)

Radiological terror

Q.No	Country	Article	Ref. in National Report
32	United Arab Emirates	Article 16.1	15

Question/ Comment: Section 16.1 states that “in a case of an emergency, urgent information for the public together with the recommendations for counter measures will be provided by the competent federal authorities.” Who is responsible for this? Who are the competent federal authorities?

Answer: In accordance with the Austrian legislation (Austrian Radiation Protection Act and Ordinance on Interventions in Case of a Radiological Emergency) the responsibilities in Austria in case of a radiological emergency are as follows: The Austrian Federal Ministry of Agriculture, Forestry, Environment and Water

Management (BMLFUW) has to evaluate the situation and the possible consequences of the event. Based on this evaluation, the BMLFUW - in cooperation with the Austrian Federal Ministry of Health - has to decide on the counter measures and inform the public on the situation and on the recommended counter measures. The nine Austrian Provinces are responsible for the implementation of these counter measures.

Q.No	Country	Article	Ref. in National Report
33	United Arab Emirates	Article 16.1	15

Question/ Comment: How are intervention levels for responding to any emergency defined?

Answer: Intervention levels for sheltering (1 mSv for persons < 18years and pregnant women, 10 mSv for adults, 7 days intervention dose), Iodine prophylaxis (10 mGy for persons < 18years, 100 mGy for adults up to 40 years and 500 mGy for adults older than 40, committed thyroid dose), evacuation (50 mSv, avertable 7days intervention dose) and temporary (30 mSv in 1 month, external effective dose) and permanent relocation (100 mSv in 1 year, external effective dose) are defined in the Austrian legislation (the Austrian Radiation Protection Act and Ordinance on Interventions in Case of a Radiological Emergency, www.strahlenschutz.gv.at). In addition, the European Commission has laid down maximum permitted levels for the contamination of food- and feedstuff which may be placed on the market and which directly apply to Austria in case of a radiological emergency (EURATOM Regulations 3954/87, 2218/89, 770/90).

Q.No	Country	Article	Ref. in National Report
34	United Arab Emirates	Article 16.1	15

Question/ Comment: Does the Federal Ministry of Health provide a warning of toxic effects in pre-distribution of K-I blocking?

Answer: The Federal Ministry of Health provides the public with comprehensive information about potassium iodine blockade. This information also contains contraindications and possible side effects.

Q.No	Country	Article	Ref. in National Report
35	Canada	Article 16.2	17

Question/ Comment: Are laboratories that participate in the laboratory-based monitoring network accredited (e.g. ISO 17025)? If not, how does BMLFUW ensure the validity of the results reported by the laboratories?

Answer: Yes, they are accredited according to ISO 17025.

Q.No	Country	Article	Ref. in National Report
36	United Arab Emirates	Article 17.1	17

Question/ Comment: On what basis is an SAR update required?

Is there a reference for the diploma thesis that concluded that operational impact of the TRIGA was negligible?

Answer: The SAR is updated whenever there is a safety related change in reactor systems or components or when new computer programs are available for reactor safety analysis. The latest environmental impact of 3 accident scenario were calculated in a Diploma Thesis at the Vienna University of Technology/Atominstitute and is available as pdf from the VUT/ATI (boeck@ati.ac.at) " Unfallszenarien und Umweltauswirkungen des TRIGA Mark II Reaktors in Wien"by Markus Haydn.

Q.No	Country	Article	Ref. in National Report

37	United Arab Emirates	Article 18.1	18
Question/ Comment	What is the regulatory oversight process for maintenance and in-service inspection of the TRIGA?		
Answer	The license holder has to submit completed in-service inspection and maintenance forms at regular intervals to document the work performed.		
Q.No	Country	Article	Ref. in National Report
38	United Arab Emirates	Article 18.1	19
Question/ Comment	How are changes to procedures evaluated pre-implementation?		
Answer	Changes to procedures are discussed at regular meetings among the involved Ministries prior to implementation.		