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**EUROPEAN ATOMIC ENERGY COMMUNITY
REPORT**

**Second Convention on Nuclear Safety (CNS) Extraordinary Meeting
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(presented by the European Commission)

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1. INTRODUCTION

Nuclear safety is of utmost importance to the EU and its people. Hence, ensuring the highest possible standards of nuclear safety and emergency preparedness and response is a central concern of nuclear energy policy, as much in Europe as globally.

The European Atomic Energy Community (hereinafter referred to as Euratom) has been active in the field of nuclear safety for over 35 years, through the action of its institutions, the Commission, the Council and the European Parliament, at different levels. The commitment of Euratom and its Member States to a high level of nuclear safety and to the safe management of spent fuel and radioactive waste is reflected, in particular, in the existing Euratom legislative framework as well as in the relevant Council Resolutions and conclusions of the European Council.

However, the accident that occurred at the Fukushima-Daiichi nuclear power plant in Japan, following the earthquake and tsunami of 11 March 2011, has renewed political attention to the measures needed to minimise risk and guarantee the most robust levels of nuclear safety.

First and foremost, the EU mobilised its expertise and resources to assist Japan in containing and overcoming the consequences of the disaster. The May 2011 EU-Japan Summit was dedicated to coordinating follow up actions, in particular the implementation of measures on nuclear safety cooperation. In particular several common research projects on Fukushima nuclear safety and radiation protection related issues were initiated promptly.

The Euratom Community response to the events at Fukushima was immediate. Together with national regulators¹ and the nuclear industry, the European Commission launched a process to carry out EU-wide comprehensive risk and safety assessments of nuclear power plants ("stress tests"). The initiative was supported by the European Parliament and endorsed by the European Council at its meeting of 24 – 25 March 2011². The European Council also asked the Commission to "review the existing legal and regulatory framework for the safety of nuclear installations" and to "propose by the end of 2011 any improvements that may be necessary". Finally, given the potential cross-border implications of nuclear accidents, the European Council asked the Commission to invite EU neighbouring countries to take part in the stress test process.

This is the first time that all stakeholders in the EU have, on a voluntary basis, entered into a comprehensive and coordinated process of reviewing the safety of nuclear power reactors. The human and financial resources made available to the exercise by the Member States and the European Commission, as well as the willingness of participants to work together at each step of the process, underline the importance of nuclear safety for the EU. Moreover, there are clear benefits of joint EU-level action in this area. Although nuclear safety is a national responsibility whose actions and supervision would remain solely with the operators and national authorities, it has been recognised throughout the EU as an issue of European, rather than only national dimension.

¹ National nuclear safety regulators meet in the European High Level Group on Nuclear Safety and Waste Management. This group was set up through the Commission Decision 2007/530/Euratom of 7 July 2007 (O.J. L 195/44, 27.7.2007, p. 44 – 46). The group later adopted the acronym ENSREG (European Nuclear Safety Regulators Group). More information is available at www.ensreg.eu

² EUCO 10/11 (paragraph 31)

Likewise, the EU has been working to ensure maximum protection for EU citizens at the Community level. Particular focus has been put on specific areas, such as the regulatory framework governing controls on imports of products originating from radiation prone areas, as well as recommendations to customs authorities and work to strengthen scientific research and environmental monitoring.

In addition to the measures taken within the EU, actions were also undertaken towards neighbouring countries, to promote a high-level safety culture, as well as, at the international level, through the cooperation activities of the Euratom Community with the International Atomic Energy Agency and the G8/G20.

2. OVERVIEW OF THE EURATOM COMMUNITY PARTICULAR STATUS

The European Atomic Energy Community (Euratom) is an international organization endowed with international legal personality.

As a regional organisation as referred to in Article 30 (4) of the Convention on Nuclear Safety (hereinafter: the Convention) Euratom acceded to the Convention after the Decision of the European Commission of 16 November 1999³ on the basis of Article 101 of the Euratom Treaty following a Decision of the Council of 7 December 1998. The instruments of accession, including the declaration of competences required by Article 30(4)(iii) of the Convention, were deposited with the Director General of the International Atomic Energy Agency on 31 January 2000. Thus, for Euratom the Convention entered into force on 30 April 2000 in accordance with Article 31(2) of the Convention.

Euratom does not possess or operate any nuclear installations as defined in Article 2(1) of the Convention. Such nuclear installations exist only in the territories of the Member States of the European Atomic Energy Community, to which the Euratom Treaty applies and are regulated by the national regulatory authorities in conformity their own legal framework and with the legal framework of the Community.

The report is structured according to the Guidance for National Reports developed by the General Committee of the Fifth Review Meeting of the Convention on Nuclear Safety (CNS). According to them, Contracting Parties without nuclear power plants, as it is the case for the Euratom Community, might only provide reports on topics concerning "National Organizations", "Emergency Preparedness and Response and Post-Accident Management", and "International Cooperation". However, it has been considered useful to also provide sound information on the remainder topics, as actions have been taken or planned at the Community level, in particular on the European-wide comprehensive risk and safety assessments of nuclear power plants process.

³ Commission Decision 1999/819/Euratom of 16 November 1999 concerning the accession to the 1994 Convention on Nuclear Safety by the European Atomic Energy Community (EURATOM), OJ L 318, 11.12.1999, p. 2

3. MAIN TOPICS ARISEN IN THE WAKE OF THE FUKUSHIMA ACCIDENT

3.1. Topic 1 – External Events, Topic 2 – Design Issues, and Topic 3 – Severe Accident Management and Recovery (On-Site)

3.1.1. *Comprehensive risk and safety assessments ("stress tests") of nuclear power plants in the European Union overview*

In the *Conclusions of its meeting of 24-25 March 2011*, the European Council, comprising the Heads of State or Government of the EU Member States, stated that the safety of all EU nuclear plants should be reviewed on the basis of a comprehensive and transparent risk and safety assessment.

The mandate from the European Council also comprised the invitation for EU neighbouring countries to take part in the process.

The European Commission and the European Nuclear Safety Regulators' Group (ENSREG)⁴, which comprises the Euratom Member States' independent national authorities responsible for nuclear safety, were invited to reassess the safety margins of the EU nuclear power plants in the light of the Fukushima events. This was to be done on the basis of a methodology shared among the Member States, thereby ensuring full transparency for the public.

The scope and modalities of these safety evaluation tests were developed in a coordinated framework making full use of available expertise (notably from the Western European Nuclear Regulators Association, WENRA). The European Commission and ENSREG reached an agreement on the criteria, methodology and timeframe for the assessments on 25 May 2011.

It was agreed that the safety assessment would consist of analysing how nuclear installations can withstand the consequences of various unexpected events. These can range from natural disasters to human error or technical failure and other accidental impacts, such as transport accidents⁵.

All fourteen EU Member States that presently operate nuclear power plants⁶ plus Lithuania⁷ are participating in the nuclear stress test exercise. Switzerland and the Ukraine are fully taking part as neighbouring countries. Several countries⁸ decided – in addition to the agreed requirements – to include not only operating nuclear power plants but also decommissioned

⁴ The role of ENSREG is to advise and assist the Commission, at its own initiative or at the initiative of the Commission, to progressively develop a common understanding and furthering common approaches in priority domains related to the safety of nuclear installations, the safety of the management of spent fuel and radioactive waste and transparency.

⁵ As nuclear safety and nuclear security are closely related, no assessment of the safety of nuclear power plants can be complete if there is not a similar analysis carried out on security aspects. Therefore, Member States also agreed, through the creation of a Council Ad-hoc Group on Nuclear Security (AHGNS), on a security track to analyse security threats and the prevention of, and response to, incidents due to malevolent or terrorist acts.

⁶ Belgium, Bulgaria, Czech Republic, Finland, France, Germany, Hungary, Netherlands, Romania, Slovak Republic, Slovenia, Spain, Sweden, United Kingdom.

⁷ Despite closure of the last unit in Ignalina in 2009 in fulfillment of the EU Accession obligations, there are still site-specific operating licenses in place as well as significant amounts of spent fuel stored on-site.

⁸ e.g. Belgium, Bulgaria, Finland, France, Germany, Lithuania, Netherlands, Slovakia, Spain, Ukraine, United Kingdom.

plants or other nuclear facilities (e.g. research nuclear reactors) and other issues (e.g. human and organizational factors) relevant from the nuclear safety point of view.

Specifications on the safety evaluation tests⁹ define three main areas to be assessed:

- extreme natural events (earthquake, flooding, extreme weather conditions);
- response of the plants to prolonged loss of electric power and/or loss of the ultimate heat sink (irrespective of the initiating cause); and
- severe accident management.

The methods of investigation are defined nationally and are under the responsibility of the national regulatory authorities.

3.1.2. Schedules and milestones of the nuclear safety assessments

The EU-wide stress test process, officially started on 1 June 2011, has been organised in three main phases:

- *Self assessments by nuclear operators.* Nuclear operators were asked to produce progress reports by 15 August 2011 and final reports by 31 October 2011 for submission to their respective national regulator.
- *Review of the self assessments by national regulators.* National regulators reviewed the information supplied by operators and prepared national reports (progress reports by 15 September 2011, and final reports by 31 December 2011) that are available to the general public¹⁰.

In compliance with the agreed deadlines, all the participating EU Member States transmitted their progress and final reports to the European Commission¹¹. Based on the progress reports and on the interim report prepared by the Council Ad Hoc Group on Nuclear Security (AHGNS), the Commission adopted the *Commission interim stress tests report*¹², presented to the European Council meeting of 9 December 2011. This document summarises the work carried out by that time to reassess the safety and security of nuclear power plants operating in the Community and provides the Commission's initial assessment of the current situation, as well as some preliminary ideas for future work.

- *Peer reviews of the national reports, conducted by national experts (from both nuclear and non-nuclear countries) as well as European Commission experts* in the period January–March 2012, aim to provide a complementary assessment of the national results at the European level with regard to completeness and consistency,

⁹ Annex I of the ENSREG declaration of 12 – 13 May 2011.

¹⁰ www.ensreg.eu/EU-Stress-Tests/Country-Specific-Reports

¹¹ From neighbouring countries, Switzerland and Ukraine have provided national reports.

¹² Communication from the Commission to the Council and the European Parliament on the interim report on the comprehensive risk and safety assessments ("stress tests") of nuclear power plants in the European Union (COM(2011) 784 final, 24.11.2011)

whilst ensuring the highest levels of objectivity and neutrality in order to build confidence in the results.

The peer-review process is organised in two phases:

- "Topical reviews": A peer-review related to horizontal topics, comparing the consistency of the national approaches and findings in the three key areas: extreme natural events, loss of safety functions and severe accident management.
- "Country reviews": A vertical (national) peer-review, assessing the national reports as a whole.

The results of the peer reviews will be transmitted to the European Council meeting of 28–29 June 2012 for information.

3.2. Topic 4 – National Organisations

3.2.1. Overview

The adoption by the Council in 2009 of the Nuclear Safety Directive¹³ was a major step forward in the EU's nuclear safety regime. This Directive creates a comprehensive and legally binding Community framework for the nuclear safety of a large range of nuclear installations. It defines basic principles and obligations governing nuclear safety in the Euratom Community. It transposes into Community law the key obligations resulting from the Convention on Nuclear Safety¹⁴ and the main international nuclear safety standards, namely the Safety Fundamentals¹⁵ established by the International Atomic Energy Agency (IAEA). The deadline for Member States to complete the implementation of the Nuclear Safety Directive at national level was 22 July 2011.

3.2.2. Schedules and milestones

In addition to the comprehensive risk and safety assessment process, the mandate from the European Council included starting a reassessment and possible revision of the existing Euratom Community legal and regulatory framework for the safety of nuclear installations.

Initial views on potential areas of legislative improvement have already been included in the above mentioned Commission interim report on the stress tests¹⁶. The Commission sees scope for improving the legal framework at EU and national level in the following areas: 1) improving technical measures for safety, and improving the necessary oversight to ensure full implementation, 2) improving the governance as well as the legal framework of nuclear safety, 3) improving emergency preparedness and response, 4) reinforcing the EU nuclear liability regime and 5) enhancing scientific and technological competence. However, the starting point is the full implementation of existing Euratom rules.

¹³ Council Directive 2009/71/Euratom of 25 June 2009 establishing a Community framework for the nuclear safety of nuclear installations (OJ L 172, 2.7.2009, p.18 – 22)

¹⁴ INFCIRC 449 of 5 July 1994. The Community and all the EU Member States are Contracting Parties

¹⁵ Fundamental safety principles, IAEA Safety Standard Series No. SF-1 (2006)

¹⁶ COM(2011) 784 final, section 3.

In line with its general principles of consultation and dialogue¹⁷, the Commission launched an open public consultation (published on the Europa website¹⁸), seeking views on *Areas of reinforcing the existing Euratom nuclear safety legislative framework*. The consultation was open during the period 21 December 2011 – 29 February 2012.

In addition to the open public consultation, the Commission has engaged in a transparent dialogue with various stakeholders, in particular, the European Nuclear Safety Regulators Group (ENSREG), the Western European Nuclear Regulators Association (WENRA), and the European Nuclear Energy Forum (ENEF).

3.2.3. *Future steps*

Two main legislative approaches aiming to improve the Community nuclear safety framework are currently under consideration:

- (i) legislative amendments to reinforce the existing Community nuclear safety legislative framework, and
- (ii) improvements in the implementation of existing mechanisms, as well as enhanced coordination between the Member States.

Any legislative proposals that could be put forward would have to take into account the final conclusions of the 'stress tests' process and any lessons learned from the Fukushima nuclear accident, the results of the open public consultation, the stakeholders' input, and relevant discussions at international level.

In the light of these factors, the European Commission, empowered by its right of legislative initiative, could propose a revision of the Nuclear Safety Directive by the end of 2012, expanding and complementing its main provisions.

3.3. Topic 5 – Emergency Preparedness and Response and Post-Accident Management (Off-Site)

3.3.1. *Overview*

Actions to prevent, prepare for and deal with nuclear and radiological emergencies are primarily taken at national level. However, efforts at national, regional and local level with regard to disaster prevention, the preparedness of those responsible for civil protection, and intervention in the event of a disaster can be supported and supplemented at European level.

The legislative framework for European civil protection establishes a European-wide framework for effective and rapid co-operation between national civil protection services when mutual assistance is needed.

¹⁷ 'Towards a reinforced culture of consultation and dialogue – General principles and minimum standards for consultation of interested parties by the Commission' (COM(2002) 704 final).

¹⁸ http://ec.europa.eu/energy/nuclear/consultations/20120229_euratom_en.htm

Thus, a range of EU legislative instruments¹⁹ and special provisions relating to nuclear accidents²⁰ are already in place, on the basis of which several Community mechanisms²¹ can be activated in such events.

3.3.2. *Schedules and milestones*

In December 2010, the Commission, in close collaboration with the Member States, issued Guidelines on national risk assessments for disaster management. The main aim of the guidelines is to improve coherence among the risk assessments undertaken in the EU Member States at national level in the prevention, preparedness and planning stages and to make these risk assessments more comparable between Member States. This will lead to a greater transparency and facilitate co-operation in efforts to prevent and mitigate shared risks, such as cross-border risks. The EU is co-financing specific projects in this area through the European Civil Protection Mechanism.

Member States have voluntarily committed to prepare and submit their national risk assessments by the end of 2011. This process is on-going. Nuclear safety and public health threats are important elements of their comprehensive risk assessment. The EU guidelines for national risk assessment and mapping will serve as a basis for the 2012 overview of the major risks the EU might face in the future.

At European level, two types of modules have been defined in the context of the European civil Protection Mechanism. These pre-defined response resources which cover CBRN detection and sampling, and search and rescue in CBRN conditions, can be mobilised and deployed at very short notice at the request of a country, inside or outside the EU, affected by a nuclear or radiological incident overwhelming its response capacity. In addition, through the same Mechanism additional civil protection assets and expertise may also be requested and mobilised to support to the overall response of authorities. If requested, the Commission may cover up to 50% of the transport costs through the European Civil Protection Financial Instrument.

Following the Commission Communication "Towards a stronger European disaster response: the role of civil protection and humanitarian assistance"²², the Commission has presented a legislative proposal to the Council and the European Parliament to strengthen the European Civil Protection Mechanism²³. Work is in progress to create a European Emergency Response Capacity of Member States' assets, to establish a fully-functional 24/7 Emergency Response

¹⁹ The Basic Safety Standards Directive, the Public Information Directive, the ECURIE Decision, the Civil Protection Mechanism legislation, as well as the foodstuffs and feeding stuffs regulations following the Chernobyl accident and the accident at the Fukushima nuclear power station.

²⁰ In particular, legislation on maximum permitted levels of radioactive contamination of foodstuffs and of feedingstuffs following a nuclear accident or any other case of radiological emergency.

²¹ European Community Urgent Radiological Information Exchange (ECURIE), European Radiological Data Exchange Platform (EURDEP), Reconciling National Forecasts of Atmospheric Dispersion (ENSEMBLE), Radioactivity Environmental Monitoring (REM), Council Decision 2007/779/EC, Euratom establishing a Community Civil Protection Mechanism (recast), Council Decision 2007/162/EC, Euratom establishing a Civil Protection Financial Instrument, and Commission Decision 2010/481/EU, Euratom amending Decision 2004/277/EC, Euratom as regards rules for the implementation of Council Decision 2007/779/EC, Euratom establishing a Community civil protection mechanism..

²² COM(2010) 600 final

²³ COM(2011) 934 final 20.12.2011

Centre, and to develop European contingency plans for the main types of disasters, including nuclear.

3.3.3. Future steps

In the light of the evolving lessons learned from the Fukushima accident, the importance of ensuring appropriate off-site emergency preparedness and response arrangements in the case of a major nuclear accident has been clearly acknowledged.

However, each EU Member State has developed its own off-site emergency arrangements aimed towards providing protective measures for the population around nuclear facilities.

Although emergency preparedness measures managed by relevant off-site services for civil protection (fire-fighters, police, health services....) are in principle out of the scope of the currently ongoing European-wide stress tests exercise, some EU Member States and neighbouring countries have already started to evaluate emergency management provisions for "beyond design-basis" accident conditions (i.e. accidents which may be possible, but were not fully considered in the design basis because they were judged to be too unlikely) and identified possible improvements.

As some more harmonisation in this field would be beneficial for each country and for the EU as a whole, preliminary discussions have started within ENSREG to assess the opportunity to launch a specific action on off-site emergency preparedness. It should involve authorities responsible for off-site emergency planning in case of nuclear accidents, as well as the operators of nuclear power plants, nuclear safety regulators and technical safety organisations (TSOs) to the extent they are involved in such emergencies.

The main objective of this action should be the detailed review and comparison of current solutions in EU countries, harmonisation of the bases for emergency planning, identification and implementation of potential improvements on EU level in order to optimise resources and avoid duplications, both nationally and across borders.

3.4. Topic 6 – International Cooperation

3.4.1. Proposed improvements in the global legal framework on nuclear safety

Events at Fukushima highlighted the need to strengthen the international legal framework for nuclear safety. Through the IAEA, the main instruments governing nuclear safety are the International Conventions, in particular the Convention on Nuclear Safety (CNS) and the Convention on the Early Notification of a Nuclear Accident. In addition, the internationally agreed IAEA safety standards are used as a basis for the IAEA safety review services performed in the IAEA Member States.

IAEA Member States generally acknowledge the need to enhance the effectiveness, governance and enforceability of the international nuclear safety framework, especially the CNS. The Euratom Community, represented by the Commission, intends to contribute to this process²⁴.

²⁴ Art. 101, Euratom Treaty

3.4.2. *EU Neighbouring Countries*

As the priority of ensuring the safety of nuclear plants obviously cannot stop at the EU borders, the European Council encouraged all countries operating nuclear power plants to carry out, as soon as possible, risk and safety assessments similar to those under way in the EU, in order to strengthen nuclear safety worldwide. Likewise, it has been underlined that public participation and transparency is necessary while implementing nuclear power projects not only in the EU, but also in neighbouring countries.

The Euratom Community has taken steps to extend on a voluntary basis assessments to EU neighbouring countries that operate or own nuclear power plants: Switzerland, the Russian Federation, Ukraine, Armenia and Croatia, as well as countries that have advanced plans for the development of nuclear power, namely Turkey and Belarus.

On 23 June 2011, a joint statement was agreed with the above mentioned countries on a common approach to stress tests. While Switzerland and the Ukraine are fully integrated in the EU stress test process, other countries are working with different timetables. However, there is a shared commitment to carry out safety reassessments by the end of 2012.

3.4.3. *Cooperation with the International Atomic Energy Agency (IAEA) and the G8/G20*

The IAEA Action Plan on Nuclear Safety, adopted in September 2011, encourages all IAEA Member States to undertake, and act upon, a national assessment of the design of nuclear power plants against site-specific extreme natural hazards. The European Commission, on behalf of the Euratom Community, will provide input to IAEA work on developing a methodology that can be used by other States, and is ready to assist the IAEA in advising or helping third countries to implement such nuclear safety assessments. Observers from the IAEA have followed the peer reviews of the EU stress tests.

The Euratom Community, represented by the Commission, fully participated in the G8/G20 process preparing the IAEA Ministerial conference of June 2011, which endorsed the IAEA action plan on nuclear safety. The Community, in accordance with its competences, will do its utmost to achieve further progress in these international initiatives.

3.4.4. *External nuclear safety cooperation*

Improving nuclear safety in third countries has been an essential part of the Community's work since the early 1990s. The TACIS and Phare programmes made it possible to provide assistance to Central and Eastern European and former Soviet Union countries for fifteen years. From 2007, nuclear safety cooperation was extended to other third countries under the Instrument for Nuclear Safety Cooperation (INSC). The Communication on the external dimension of energy policy²⁵ calls for greater convergence of international regulatory frameworks and seeks to promote binding international standards for nuclear safety.

The present INSC will continue to cooperate with third countries on nuclear safety matters and will notably provide support to third countries aiming at performing comprehensive risk and safety assessment of nuclear installations ('stress tests'). A new INSC for the period 2014 – 2020 has been recently proposed. The new proposed instrument will take into account in its implementation the experience gained and the priorities emerging from the stress tests. The

²⁵ COM(2011)539 final of 7 September 2011

new INSC will be integrated into a comprehensive and coherent strategy of nuclear safety cooperation, taking into account international actions in the IAEA framework.