IAEA

IEC
Incident and
Emergency Centre

EPR *INSIGHTS*

Updates on Emergency Preparedness and Response

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FOCUS:
EXERCISES IN EMERGENCY PREPAREDNESS AND RESPONSE

Emergency Preparedness and Response (EPR) exercises prepare us for the worst whilst building the tools and capabilities that also are useful in the best of times.

On 21 and 22 June 2017, the IAEA, the National Directorate General for Disaster Management, Ministry of the Interior of Hungary and the Hungarian Atomic Energy Authority (HAEA), conducted a two-day international emergency exercise to test responses to a simulated accident at a nuclear power plant in Hungary. The exercise was preceded by more than 18 months of preparations for a situation that we hope will never occur. The exercise helped us test our plans and procedures for responding appropriately if it ever does.

As Head of the Department of Nuclear Security, Non-proliferation and Emergency Management in the HAEA, I oversaw the conduct of this 'Convention Exercise' (ConvEx) from the Hungarian side, taking the role of Chief Evaluator. This particular ConvEx Level 3 (ConvEx-3) simulated a multi-unit loss of coolant accident at the Paks Nuclear Power Plant (NPP).

There have been many international nuclear and radiological emergency exercises over the past two decades, and they have given us great insight into our EPR capabilities. International cooperation and joint sponsorship of emergency exercises can reduce the total number of exercises undertaken and optimize resource utilization. Real emergencies from the past have taught us many lessons, and EPR experts have used these events to improve response arrangements and implementation. But real-life emergencies remain uncommon and we must continue to learn lessons. Exercises fill the gap where reality is lacking.

Exercises aim to mitigate the effects of an emergency on people, property and the environment. Exercise designers anticipate the actions of participants and include deliberate obstacles to test how responders adapt to changing circumstances. It is not simply a case of developing a scenario and letting people run with it. For the ConvEx-3, hundreds of injects were prepared to simulate updates to technical details at the NPP, radiation levels in the atmosphere, media enquiries and social media posts. Over 100 water samples were sent to 43 Member States to test their capabilities in performing laboratory measurements of environmental samples and to communicate the results of the measurements to the competent authorities.

The results and analyses of such large-scale exercises must be honestly evaluated and openly shared. Immediately following the ConvEx-3 the HAEA started to evaluate its own emergency response to ascertain where shortcomings were revealed. Together with our colleagues in the IAEA we are preparing an exercise report that will detail the areas where we passed the test, as well as areas where lessons need to be learned.

Experience has shown that public reaction to a nuclear or radiological emergency will have an impact on the effectiveness of the response efforts. We must be transparent and inform about the reasons for holding exercises, and most importantly, about their results. By showing that we prepare for the worst, we build a platform for public trust if an accident should occur.

The 'Guide for Players' document of this exercise begins with the following statement: "There is no exercise without players". For ConvEx exercises to work, all States must be committed to participating fully. Exercise preparations and participation should be integral parts of EPR arrangements. The IAEA's Incident and Emergency Centre (IEC) supports capacity building in EPR for all Member States and can advise on how to improve the arrangements of exercises. Moving forward and looking ahead to the next ConvEx-3, all Member States must show willingness to get involved with the exercises and test their own EPR arrangements on the world stage.

Árpád VINCZE,

Head, Department of Nuclear Security, Non-proliferation and Emergency Management, Hungarian Atomic Energy Authority

CONVENTION EXERCISE LEVEL 3

IAEA TESTS GLOBAL EMERGENCY RESPONSE IN LARGEST NUCLEAR ACCIDENT SIMULATION TO DATE

The largest international exercise to date simulating global emergency response to a nuclear accident took place 21-22 June 2017, involving hundreds of participants from 83 Member States and 11 international organizations.

The exercise's scenario involved a simulated loss of coolant at a nuclear power plant reactor and the release of radioactive material in Hungary, which acted as the exercise's accident state. The Inter-Agency Committee on Radiological and Nuclear Emergencies, which comprises 18 international organizations, coordinated the preparation of the international dimension of the exercise.

"It is important to prepare for the worst, even while working to ensure it never happens," said Juan Carlos Lentijo, IAEA Deputy Director General and Head of the Department of Nuclear Safety and Security. "Through exercises like this we can evaluate our readiness in case of a nuclear accident and identify good practices and areas for improvement."

"Exercises such as this one aim to enhance cooperation during an emergency, ensure prompt exchange of information, test mechanisms for international assistance and practise the release of public information", Lentijo said.

The exercise scenario was developed by the IAEA and the operating organizations of Hungary's Paks Nuclear Power Plant and the Hungarian Atomic Energy Authority.

The exercise began at 4:30 a.m. on Wednesday 21 June. Over the following 36 hours, the IAEA worked closely with national authorities from

The IAEA Incident and Emergency System Steering Group meet during the ConvEx-3 Exercise, Vienna, June 2017. (Photo: D. Calma/IAEA)

the 83 Member States and the international organizations to practise implementing the international framework for Emergency Preparedness and Response (EPR).

The exercise involved 24/7 staffing of the Incident and Emergency Centre (IEC) at the IAEA's headquarters, with over 100 staff members working in shifts. Additional IAEA staff was involved in other roles such as testing of various elements of the Agency's Incident and Emergency System (IES).

IAEA personnel answered simulated questions from national authorities, analysed incoming mock data and prepared periodic status summaries to share with emergency response teams worldwide. "The only way to know how you will actually respond to a nuclear or radiological emergency is to practise, practise, practise," said exercise participant Yassine Chaari, an IAEA Safety Officer. "I worked on a late shift as a Liaison Officer and was in constant contact with Member States, updating them on the scenario."

Large-scale Convention Exercises of this kind are conducted every three to five years to test the operational arrangements required to fulfil various Parties' obligations under the Convention on Early Notification of a Nuclear Accident and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency. These conventions were signed in 1986 in the aftermath of the accident at the Chernobyl nuclear power plant. More than 115 IAEA Member States and other organizations are party to the Conventions.

In the coming weeks the IAEA will gather and analyse feedback from exercise participants and compile it into a report. The report will identify good practices and areas that need to be improved to strengthen national and international preparedness and response to nuclear and radiological emergencies.

IAEA senior officials answer questions during a mock press conference which was used to test communication with the media during the ConvEx-3 Exercise, Vienna, June 2017. (Photo: S. Harvey/IAEA)

UNDERSTANDING CONVENTION EXERCISE LEVELS

The IAEA' Incident and Emergency Centre conducts exercises to test specific functions under the Convention on Early Notification of a Nuclear Accident and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency. There are three levels of Convention Exercises (ConvEx):

ConvEx-1 test emergency communication links with contact points in Member States and the response times of the contact points.

ConvEx-2 test specific parts of the international response system. This can be, for example, the use of procedures for completing notification and reporting forms, the use of procedures for requesting or offering international assistance, or all response arrangements for a period of 6 to 8 hours.

ConvEx-3 are full-scale exercises that last a few days and evaluate international emergency response arrangements and capabilities for a severe nuclear or radiological emergency.

For more information, see the Operations Manual for Incident and Emergency Communication (EPR-IEComm, 2012) available in all official IAEA languages at http://www-pub.iaea.org/books/IAEABooks/Series/124/Emergency-Preparedness-and-Response.

MEET THE IEC STAFF

Florian Baciu

"As IAEA Chief Controller for the 2017 ConvEx-3, I was responsible for ensuring that the exercise was conducted according to the agreed scenario. After months of planning with Member States and International Organizations, the ConvEx-3 went as planned under existing emergency arrangements. At the IEC, we are looking forward to using lessons learned to further improve international EPR arrangements."

Florian Baciu is the Response System Coordinator. His team supports operational implementation of the IAEA's response roles during nuclear or radiological incidents and emergencies.

NUCLEAR EMERGENCIES AT SEA

EXPERTS PRACTISE EMERGENCY COMMUNICATION PROCEDURES

A fictional scenario involving a fire breaking out on a ship transporting nuclear waste gave 24 exercise participants a chance to practise emergency communication skills.

Throughout the exercise, participants were given information reflecting how real-time events might unfold. They then assessed the information and responded to it, while also describing their decisions and actions to the group.

"The safety of maritime transport of nuclear materials, as well as the preparedness to respond to emergencies, are the responsibilities of States," said Elena Buglova, Head of the IEC. "Given the potential effects such an incident would have on several countries, close coordination and communication between the authorities of affected countries is crucial."

In the early 2000s, Coastal and Shipping States, including those involved in the table-top exercise, set up a 'Coastal State–Shipping State Dialogue':

IAEA Incident and Emergency Centre Head Elena Buglova, Ambassador Leigh Turner of the United Kingdom, and Stephen Whittingham, Unit Head of the Transport Safety Unit in the IAEA Department of Nuclear Safety and Security, take part in a table-top exercise on 28 June 2017 at the IAEA headquarters. (Photo: W. Gruenwald/IAEA)

Representatives from France, Japan and the United Kingdom take part in the table-top exercise at the IEC operational area . Representatives from Ireland, Portugal and Spain participate via videoconferencing. (Photo: W. Gruenwald/IAEA)

an informal mechanism for consultation and information exchange about nuclear maritime transport. The table-top exercise tested international cooperation through the Dialogue.

"Exercises like this help build confidence and promote transparency among countries that have to deal with shipments of nuclear material," said Ambassador Pedro Moitinho de Almeida, Permanent Representative of Portugal to the International Organizations in Vienna and Chair of the Dialogue. "This allows us to practise emergency response arrangements and helps us to put our national plans into context with those of our international partners."

Ambassador Leigh Turner, Permanent Representative of the United Kingdom to the International Organizations in Vienna and incoming Chair of the Dialogue, observesd that "the exercise showed the importance of communication and cooperation between States during a nuclear or radiological emergency. The scenario helped us to evaluate national communication arrangements and to understand the needs of our partners."

The table-top exercise was the latest in a series conducted by the Dialogue between Coastal and Shipping States, with the previous exercise being held in 2015. The exercises improve communication among Coastal and Shipping States and help strengthen safety procedures for the maritime transit of nuclear material.

Ambassador Mitsuru Kitano, Permanent Representative of Japan to the International Organizations in Vienna and former chair of the Dialogue, said:

"The Dialogue has progressed in enhancing international cooperation and information sharing in order to build confidence in nuclear maritime transport."

EXERCISES CENTRAL TO UPCOMING ACTIVITIES

FIELD EXERCISES AND PRACTICAL TRAINING SESSIONS

INTERNATIONAL ASSISTANCE MISSIONS

States that need assistance in a nuclear or radiological incident or emergency may request it from or through the IAEA's Response and Assistance Network (RANET). On 2 to 6 October, the first exercise to test the conduct of an IAEA Assistance Mission will take place in the IAEA RANET Capacity Building Centre, Fukushima Prefecture, Japan.

A scenario involving a simulated accident at a nuclear power plant in a fictitious country that results in the release of radioactive material to the environment has been developed for the exercise. The Accident State in the scenario does not have sufficient capacity to handle the situation and requests international assistance from the IAEA, The IAEA responds to such requests by preparing and deploying an IAEA Assistance Mission that includes a Joint Assistance Team. Such teams comprise Field Assistance Teams, External Based Support and the IAEA Secretariat.

Representatives of six Member States that are part of RANET will play a role in the exercise, by analysing information, propose responses and describe their actions.

The IAEA RANET Capacity Building Centre was designated in 2013 and hosts training courses, workshops and exercises aimed at enhancing nuclear EPR capacity across the world. The exercise enables the IAEA to exercise the command and control, coordination, and data management of an Assistance Mission. In addition, the exercise will evaluate the interaction between Joint Assistance Team Members and the Accident State, and provide feedback for further improvement of the IAEA's process for coordinating the assistance.

IAEA SCHOOL OF RADIATION EMERGENCY MANAGEMENT

The IEC will conduct three Schools of Radiation Emergency Management in October and November 2017. The School, developed by the IEC and international nuclear and radiological EPR experts, is based on IAEA Safety Standards and technical guidelines.

The School features up-to-date knowledge and aims to enable participants to facilitate the effective implementation and coordination of EPR arrangements in their countries. The School will be held in the Republic Korea and twice in Austria before the end of 2017. Each three-week course includes lectures, working sessions and exercises.

IAEA EMERGENCY PREPAREDNESS AND RESPONSE

INFRASTRUCTURE UPDATES

To accommodate an increase in the IAEA's assessment and prognosis work, the IEC has allocated specific workstations within the existing operational area for implementing tasks of assessment and prognosis, as well as coordination of requested international assistance, during nuclear or radiological emergencies.

The IEC welcomes visits from Member State delegations who wish to tour the operational area, meet staff and learn more about emergency preparedness and response in the IAEA.

IES Technical Team staff work in the dedicated assessment and prognosis area of the IEC during the ConvEx-3 Exercise, Vienna, June 2017. (Photo: W. Gruenwald/IAEA)

EVENTS

Contact Point for Events: IEC-Information@iaea.org

SELECTED IAEA-ORGANIZED EVENTS IN 2017

20 Sept

General Conference Side-Event - 2017 ConvEx-3 Exercise: Enhancing Emergency Preparedness and Response during the IAEA's Largest International Emergency Exercise, Vienna, Austria.

Purpose: Give an insight into the preparations, conduct and outcomes of the large-scale ConvEx-3 exercise held in June 2017. Representatives from Hungary, which developed the emergency exercise scenario, will describe national response activities and the IEC will present some of the immediate lessons learned regarding international response arrangements.

2-5 Oct

Workshop on the Revised Safety Requirements in Emergency Preparedness and Response (GSR Part 7), Melbourne, Australia.

Purpose: Raise Member States' awareness of the revised safety requirements in emergency preparedness and response. Participants will discuss the revisions' impact on national emergency preparedness and response frameworks and identify areas that require further guidance and support to facilitate their application.

2–6 Oct

Workshop on the Deployment of an Assistance Mission consisting of a Joint Assistance Team (RANET JAT), Fukushima Prefecture, Japan.

Purpose: Exercise the conduct of an IAEA Assistance Mission with a JAT comprising Field Assistance Teams and External Based Support experts from different Member States registered in RANET, as well as representatives from the IAEA Secretariat.

9–12 Oct

Train the Trainers Workshop on the International Nuclear and Radiological Event Scale, Vienna, Austria.

Purpose: Enable newly appointed INES National Officers to train their colleagues on rating guidance.

9-27 Oct

School of Radiation Emergency Management, Traiskirchen and Vienna, Austria.

Purpose: Enable managers from Europe to develop and manage sustainable emergency preparedness and response programmes, using the IAEA safety standards, technical guidelines, tools and training material.

16-20 Oct

Technical Meeting to Review the Draft Safety Guide Preparedness and Response to an Emergency During the Transport of Radioactive Material (DS469), Vienna, Austria.

Purpose: Review and discuss the draft text of the proposed revised Safety Guide on Preparedness and Response for an Emergency during the Transport of Radioactive Material (DS469) with Member States and relevant international organizations, and identify needs for its further improvement.

16-20 Oct

Workshop on the Implementation of the Guidelines for the Harmonization of Response and Assistance Capabilities.

Purpose: Improve Member States awareness and understanding of the Guidelines for the harmonization of response and assistance capabilities, and share experiences between Member States implementing the Guidelines for the harmonization of response and assistance capabilities.

16-19 Oct

National Training Course on Communication with the Public in a Nuclear or Radiological Emergency, Jakarta, Indonesia.

Purpose: Provide information and practical guidance on public communication during a nuclear or radiological emergency.

16–20 Oct

Pilot Workshop on Arrangements for the Termination of a Nuclear or Radiological Emergency.

Purpose: Assist Member States in the implementation of the IAEA guidance on Arrangements for the Termination of a Nuclear or Radiological Emergency.

23–25 Oct

Workshop on First Steps of the Project on EPR Arrangements for the Mediterranean Region, Vienna, Austria.

Purpose: Assist the non-EU Mediterranean Member States to enhance their capabilities to respond to radiological emergencies occurring in coastal ports and within the Mediterranean basin.

6–9 Nov

Fifth Meeting of the Emergency Preparedness and Response Standards Committee (EPReSC), Vienna, Austria.

Purpose: Make recommendations on the emergency preparedness and response aspects of the IAEA's programme for the development, review and revision of safety standards and on the activities to support the use and application of these standards.

6-10 Nov

International Workshop on Nuclear Security Measures and Emergency Response Arrangements for Ports.

Purpose: Member States that are developing or revising their security measures or emergency response arrangements at ports will exchange information.

6-24 Nov

School of Radiation Emergency Management, Traiskirchen and Vienna, Austria.

Purpose: Enable managers from Africa to develop and manage sustainable emergency preparedness and response programmes, using the IAEA safety standards, technical guidelines, tools and training material.

20-22 Nov

National Training Course on the International Nuclear and Radiological Event Scale, Helsinki, Finland.

Purpose: Train participants on the rating methodology and teach on how to effectively use the rating for communication of nuclear and radiological events.

20-24 Nov

Regional Workshop on Communication with the Public in a Nuclear or Radiological Emergency, Riga, Latvia.

Purpose: Provide information and practical guidance to officers acting within a Command and Control System on public communication in a nuclear or radiological emergency, discuss regional capabilities and identify regional needs and expertise.

27 Nov-15 Dec

School of Radiation Emergency Management, Seoul, Republic of Korea.

Purpose: Enable managers from the ASEAN States to develop and manage sustainable emergency preparedness and response programmes, using the IAEA safety standards, technical guidelines, tools and training material.

18-19 Dec

Technical Meeting to Evaluate the ConvEx-3 (2017) Exercise, Vienna, Austria.

Purpose: Evaluate the ConvEx-3 (2017) exercise, discuss lessons identified and review the draft Exercise Report. Participants will present evaluation reports regarding the exercise, discuss lessons identified related to the emergency preparedness and response and provide feedback on the draft Exercise Report.

IMPRESSUM

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