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EPR INSIGHTS
Updates on Emergency Preparedness and Response

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Deadline Extended: IAEA Conference on the Development of Preparedness for National and International Emergency Response

Laura Gil, IAEA Department of Nuclear Safety and Security

Official branding of the EPR2021 Conference (Image: K.Vargas/IAEA)

The deadline for interested contributors to submit abstracts for the International Conference on the Development of Preparedness for National and International Emergency Response (EPR2021), to be held in Vienna, Austria from 11 to 15 October 2021, has been extended to 1 June 2021.

Member States' and international organizations' diligent planning always includes preparations for possible radiation-related emergencies. Taking this into account, planners need to implement an efficient nuclear and radiological emergency preparedness and response (EPR) system based on effective emergency preparedness, robust arrangements, and trained responders.

"While the responsibility to develop, maintain and strengthen nuclear and radiological EPR arrangements rests with national authorities, the IAEA plays a central role in fostering the international EPR framework for nuclear and radiological emergencies," said Florian Baciu, Acting Head of the IAEA's Incident and Emergency Centre, which is organizing the EPR2021 conference. "The presentations and discussions at EPR2021 directly support the IAEA's development of EPR guidance to provide Member States a reference to develop and sustain robust EPR arrangements."

The EPR2021 conference is an international forum to exchange information on EPR topics and enhance global awareness of both progress made at national and international levels and the challenges encountered. During the conference, EPR experts from around the world will share experience, evaluate current trends, technologies and lessons in EPR and identify key priorities in further improving readiness for nuclear and radiological incidents and emergencies—regardless of whether these arise from an accident, natural disaster, negligence, nuclear security event or any other cause.

Guidance in all areas of nuclear and radiological EPR improve understanding and implementation of international best practice, as well as the principles outlined in the IAEA Safety Standards; assistance in the design, conduct and evaluation of emergency exercises; and technical support to national and regional capacity building projects.

What are the conference objectives?

The EPR2021 conference's three objectives are to reiterate the vital importance of maintaining preparedness to respond, to emphasize that the strong international EPR framework serves as the foundation to support operational arrangements' further development, and to ensure that the centre of gravity of protection strategies is achieving the capability to provide a clear, easily understandable answer to a key question in emergencies: "*Am I safe?*". IEC

EPR2021 Conference Page https://www.iaea.org/events/epr-2021

IN THIS ISSUE

After leading the IAEA's Incident and Emergency Centre from 2010 to 2020, including during the IAEA's response to the Fukushima Daiichi nuclear power station accident, Elena Buglova was appointed on 1 January 2021 as the Director of the Division of Nuclear Security in the IAEA's Department of Nuclear Safety and Security. Read more about Elena Buglova's pioneering career.

Breaking the Glass Ceiling: A Woman's Story from Radiation Science to Nuclear Security

Anjarika Strohal, IAEA Department of Nuclear Safety and Security

Elena Buglova is currently the Director of the IAEA's Division of Nuclear Security. (Photo: D. Calma/IAEA)

Elena Buglova, Director of the IAEA Division of Nuclear Security since the start of the year, has always had deep interest in science. Growing up in what is today Belarus in a family with a medical background—her father a scientist and her mother a medical practitioner—discussions on medical topics, both the science and the practice, made regular dinnertime conversation.

"Topics ranged from new treatment protocols to scientific investigations and experiments on hematology and transfusiology, including the influence of chemical compounds and radiation on the blood conditions," she recalls.

Buglova found radiation science fascinating in these discussions, and this fascination has continued to drive her engagement in ongoing scientific research. "I had a deep interest in finding out more about radiation, and that led to my specific research as a student on individual sensitivity to radiation depending on specific blood parameters," she says.

Then came Chornobyl…

In 1986, a few years into Buglova's studies at Minsk Medical University in Belarus, the accident at the Chornobyl Nuclear Power Plant occurred, causing a huge release of radionuclides over large areas of her

country. Already involved in radiation research, Buglova was appointed as an undergraduate doctor to work with villagers located at the border of the 30-km Exclusion Zone, where medical support was needed as many doctors had moved away from the affected areas.

During this time, a memorable exchange with a local resident profoundly influenced her career choice and desire to focus on radiation safety and security. "I was taking radiation measurements in the Exclusion Zone, and while explaining to a woman what we were doing, her only interest was whether I would drink the milk from her cow, as there was a fear of the milk being contaminated. She offered me a glass of milk, and I then understood this would be the moment of truth," Buglova says. "I drank the milk. I had no issues with it. And she should not either. Her village was in an area that had been thoroughly examined, samples taken and radiation measured. By showing to her that she was under no risk, I could prove credibility of the measures, as well as my own credibility."

Buglova travelling in a bus with colleagues on the way to the Chornobyl Nuclear Power Plant.

Applying national experience at the international level

In the early 1990s, Buglova took part in field missions to the Chornobyl contaminated areas to collect and evaluate data from radiation measurements and results of health assessments. This data-based evidence was used to develop and justify measures to minimize post-Chornobyl radiation exposure to the Belarusian population.

She also performed assessments of risk coefficients for radiation-induced health effects, particularly thyroid cancers, and took part in many international projects focused on learning from the Belarusian experience after the accident. Later, her scientific work was used in the development of relevant IAEA safety standards.

Breaking the glass ceiling

Though nuclear science and the nuclear industry have been, and continue to be, male-dominated, Buglova says: "To be honest, I have never felt bothered by being the only woman in the room or felt that I was discriminated against based on my gender, but I know this isn't the case for everyone. In my family, we grew up to be equal, regardless of gender, and this has been an expectation in my professional life."

She adds: "Gender equality needs to be accepted and recognized in daily life by each and every person, and especially managers who need to show the way and lead by example."

Buglova joined the IAEA in 2002, leaving her position as Head of the Laboratory of Radiation Safety and Risk Analysis at the Institute of Radiation Medicine of Belarus in Minsk. As the Head of the IAEA's Incident and Emergency Centre (IEC) for 10 years—the first woman to hold this position—she was the driver in developing it into the center of reference it is today.

She led the IEC during the IAEA's response to the accident at the Fukushima Daiichi Nuclear Power Plant in March 2011, an emergency situation in which 230 IAEA staff worked in the IEC for 54 consecutive days and nights. "I consider it a big professional achievement to have been part of this development and establishing a sustainable IEC, which is recognized at the international level," she says.

Buglova is currently the Director of the Division of Nuclear Security at the IAEA.

Buglova, as the Head of the IAEA's Incident and Emergency Centre, speaking to the media in March 2011 following the Fukushima Daiichi accident. (Photo: D. Calma/IAEA)

The IAEA's commitment to gender equality

The IAEA strives to increase the representation of women both in the nuclear field in general and in the IAEA in particular, having committed to achieving gender parity—50 per cent men and 50 per cent women—in the Agency by 2025. As part of its effort in this regard, the Agency has established fellowships and training programmes to increase the participation of women and youth in nuclear science, such as the Marie Sklodowska-Curie Fellowship Programme, which it launched last year to provide scholarships for women beginning their careers in nuclear science and technology.

Read more about the IAEA's work on gender equality (https://www.iaea.org/about/overview/gender-at-the-iaea). Click here (https://www.iaea.org/employment) to see current IAEA vacancies. IEC

Ceaseless vigilance—
Preparing for and responding to a nuclear or radiological emergency

Peter Kaiser, IAEA Department of Nuclear Safety and Security

IAEA Specialists staff the IAEA's Incident and Emergency Centre after Japan's nuclear emergency. (Photo: IAEA)

The alert came just before sunrise in Vienna on 11 March 2011. The on-call emergency response manager reviewed the seismic report that opened on his laptop screen. Within minutes, staff trained in specialized response roles were called into the IAEA's Incident and Emergency Centre (IEC). He had initiated the IEC's 'full response' for the Fukushima Daiichi nuclear accident, based on the results of an assessment that followed pre-established procedures.

'Full response' means that over 200 staff members trained in regular exercises operate in 12-hour shifts, 24 hours per day, gathering information from emergency contact points in the 'Accident State'—in this case, Japan—and other Member States, dispatching IAEA assistance when requested, informing the international community, while updating the media and public and coordinating the international response.

A mandate to respond

During the intervening quarter of a century between the Chornobyl and Fukushima Daiichi accidents, the IAEA developed these emergency preparedness and response (EPR) 'reflexes', which include procedures, infrastructure, networks and know-how. Progressively during that intervening period, the IAEA expanded its response capacity. Six years before the Tohoku earthquake struck Japan, the IEC opened with a mandate to respond to nuclear and radiological emergencies regardless of whether they are caused by natural disasters, safety failures or malicious intent.

"The IEC is purpose-built to handle safety or security related emergencies, including extreme events, and to respond effectively regardless of the pressure," said Elena Buglova, Head of the IEC from 2011 to 2020 who led the IEC's response at that time.

Rafael Martinčič, a 20-year IAEA veteran and an expert in EPR, served in the operational area of the IEC during the marathon 1300-hour-long response to the Fukushima Daiichi accident. "For me, the key EPR lesson learned in that response is to emphatically re-emphasize the principle that all countries need to share with each other, and with the IAEA, information on their own protective and other response actions," Martinčič recalled.

Sharing information supports a consistently effective response and enables governments to provide interested stakeholders "a clear and understandable explanation of the technical basis for decisions on protective actions and other response actions, which is crucial in increasing public understanding and acceptance at both the national and international levels," Martinčič said.

Major exercises, such as the world's largest and longest international exercise, the Level 3 Convention Exercise (ConvEx-3), offer a window into countries' ability to share information about their protective actions in the midst of an emergency. "Every exercise clearly shows how far we have come in the past decade and how far we have yet to go in learning this essential lesson," Martinčič said.

A decade of innovation

Without hesitation, Elena Buglova can name what could have been done differently in the IAEA's response to the Fukushima Daiichi accident, "ideally, the IAEA would have received from Member States, well in advance of this severe accident, a mandate beyond just receiving, verifying and exchanging information. We would have been best prepared if we had had an additional, explicit mandate to develop and share the IAEA's assessment of the information, and, as feasible, provide a prognosis for the future progression of the accident."

The IAEA's response role at the time of the Fukushima Daiichi accident did not include providing a prognosis of the potential evolution of an accident or an assessment of the possible consequences. Following the emergency response, Member States acknowledged the benefits of such informed analysis to support their own national safety determinations. The IAEA General Conference granted the IAEA a mandate to provide this assessment and prognosis. "To this day, we continually reach out to Member States to exercise how the IEC will assess an accident in the midst of an emergency response and how this assessment serves to strengthen the effectiveness of that response," Buglova said.

The IAEA also issued new international safety standards and established a dedicated EPR Standards Committee, EPReSC, in 2015. "EPReSC is the global forum that continually focuses attention on EPR, not just in the aftermath of an accident. At EPReSC, the Safety Standards Committee with the largest membership, countries from around the world can share protection policies and methods to be certain that as many countries as possible can strengthen their response in line with internationally recognized best practice," Buglova said. One of EPReSC's benchmark achievements is the adoption of Preparedness and Response for a Nuclear or

Radiological Emergency (IAEA Safety Standards Series No. GSR Part 7), the IAEA safety standard with the largest number of co-sponsoring international organizations.

Preparing for tomorrow's emergencies today

As the current COVID-19 pandemic vividly demonstrates, tomorrow's emergencies will likely increase in complexity, characterized by different combinations of triggering factors and response considerations. Being prepared for the unexpected is vital for developing the agility to respond to increasingly demanding circumstances, Buglova said.

> ***"Being prepared for the unexpected is vital for developing the agility to respond to increasingly demanding circumstances."***
>
> **Elena Buglova**
> Head (2011-2020), Incident and Emergency Centre, IAEA

"As someone said, 'luck favours the prepared'. We don't see our job quite that drastically, but we do go out of our way to create challenging exercises. Failure is inevitable if you do not plan. But only an exercise will prove the plan's effectiveness," Buglova said.

The IEC and over 200 trained staff registered on the IAEA's Incident and Emergency System prepare daily for that call to respond as swiftly and effectively as possible. IEC

Related Resources

- IAEA Bulletin: A Decade of Progress After Fukushima-Daiichi https://www.iaea.org/bulletin/62-1
- Incident and Emergency Centre https://www.iaea.org/about/organizational-structure/department-of-nuclear-safety-and-security/incident-and-emergency-centre
- Preparedness and Response for a Nuclear or Radiological Emergency https://www.iaea.org/publications/10905/preparedness-and-response-for-a-nuclear-or-radiological-emergency

Have an interesting story to share about your organization or State's emergency preparedness and response practices in #nuclear?

Tag us on Twitter

@IAEAIEC

PRESS RELEASE

JAPAN INFORMS IAEA ABOUT EARTHQUAKE

20 March 2021

The Japanese Nuclear Regulation Authority (NRA) has informed the International Atomic Energy Agency (IAEA) that a 7.2 magnitude earthquake occurred at 18:09 JST / 09:09 UTC on 20 March 2021.

The NRA informed the IAEA that according to the Japan Meteorological Agency, the earthquake's epicentre was off the coast of Miyagi Prefecture, which is located in north eastern Japan.

The NRA informed the IAEA that no abnormalities were reported at the nuclear power stations located in the vicinity of the earthquake's epicentre and NRA continues to monitor the developments following the earthquake.

The IAEA remains in contact with authorities in Japan and will provide additional public information as it becomes available.

PRESS RELEASE

SPAIN INFORMS IAEA OF ALERT AT NUCLEAR POWER PLANT, NO HAZARD FOR PEOPLE OR ENVIRONMENT

16 May 2021

The Spanish nuclear safety regulator, Consejo de Seguridad Nuclear (CSN) informed the International Atomic Energy Agency (IAEA) that an alert was declared at 22:40 UTC on 15 May 2021 at Unit 1 of the Trillo Nuclear Power Plant, about 80 kilometres northeast of Madrid.

CSN informed the IAEA that the alert was declared after a fire in the main electrical transformer occurred and caused the automatic shutdown of the reactor. The fire was extinguished after 15 minutes and the alert was ended at 00:42 UTC on 16 May 2021. According to CSN, no safety systems were affected and the event, rated provisionally at level 0 on the INES scale, had no impact on the workers, the public or the environment.

The IAEA remains in contact with authorities in Spain.

PRESS RELEASE

MEXICO INFORMS IAEA ABOUT RECOVERY OF STOLEN RADIOACTIVE SOURCE

12 February 2021

The Comision Nacional de Seguridad Nuclear y Salvaguardias (CNSNS), the Mexican nuclear regulator, has informed the International Atomic Energy Agency (IAEA) that a radioactive source stolen during a robbery on 8 February near the city of Salamanca, Guanajuato State, in central Mexico has been recovered.

The CNSNS said it was informed by the licensee (the company authorised to own and use the radioactive source) at 17:00 UTC on 10 February that it had recovered the source in the town of Sarabia, Guanajuato State.

The Iridium-192 radioactive source was contained in a radiography camera used to inspect welding and concrete for hidden flaws. The camera was stolen from a vehicle used by the licensee.

The licensee informed the CNSNS that the radioactive source, which was found intact in its shielding within the radiography camera, was safely transported back to the licensee's facility. A criminal investigation into the robbery is ongoing and the CNSNS plan to carry out an inspection into the case.

The IAEA remains in contact with authorities in Mexico.

Emergency communication— What have we learned since Fukushima?

Laura Gil, IAEA Department of Nuclear Safety and Security

Journalists attend daily briefing on the Fukushima Daiichi accident at IAEA Headquarters in Vienna, Austria, 17 March 2011. (Photo: D. Calma/IAEA)

In a nuclear emergency, the communicator's role is almost as crucial as that of the first responder. Providing clear, accurate information amid the alarm and dread that emergencies provoke—when every second counts—can save lives.

So what have emergency communicators learned from the Fukushima Daiichi nuclear accident?

"Our job as communicators is to help the public make informed decisions about their safety and the safety of their loved ones," said Jessica Wieder, Director of radiation information and outreach at the United States Environmental Protection Agency (EPA), whose responsibilities include radiation monitoring. "Radiation emergencies can be scary, so our impulse in the past has been to first calm public anxiety. Now our primary goal is to translate the seriousness of radiological events into informed preparation and action without causing undue panic."

Am I safe?

Any situation involving radioactive materials leads to widespread fear, often because, for many, the concept of radiation is unfamiliar and hard to understand. To respond effectively in these situations, communicators must focus on answering a key question raised by those affected: *am I safe?*

> ***"During the Fukushima Daiichi accident, we learned the importance of getting out timely information. When that didn't happen, we saw how quickly we lost trust and how hard it was to regain it."***
>
> **Jessica Wieder**
> Director of radiation information and outreach, United States Environmental Protection Agency (EPA)

The Fukushima Daiichi nuclear accident made it clear that, to answer this question and reduce public anxiety,

communicators need to provide the public with data in a clear format.

“People wanted data. They wanted numbers,” Wieder said. “During the Fukushima Daiichi accident, we learned the importance of getting out timely information. When that didn’t happen, we saw how quickly we lost trust and how hard it was to regain it.”

Before the Fukushima Daiichi accident, only a handful of people had access to EPA’s radiation data, which was password-protected. However, within the first two weeks of the accident, EPA removed the password protection measures and made the data available on its public website, where they have been ever since.

Within 24 hours of the accident, the Tokyo Electric Power Company (TEPCO)—the Japanese company operating the plant in Fukushima—was already providing preliminary radiation monitoring data and real-time updates on conditions at the reactor. It became a challenge, however, for citizens and the media to understand what this information actually meant.

Facts alone do not overcome strong emotions, Wieder added. “We cannot just give the public data; we have to give them data along with explanations, so that they can understand what these data mean in terms of their health.”

Since the accident, the IAEA has supported the Fukushima Prefecture in many areas by providing technical expertise and helping disseminate information to the public. It has helped produce relevant public information materials, including flyers and a website, that show the results of radiation monitoring and decontamination efforts. “Using pictures, infographics, clear explanations and language free of scientific jargon is key to achieving public understanding of the data and addressing perceived risks,” said Miklos Gaspar of the IAEA’s Office of Public Information and Communication and technical officer who oversees the information dissemination support to the Fukushima Prefecture.

Many voices, one message

Once built, credibility must be maintained. In the aftermath of the Fukushima Daiichi accident, communicators learned that, to maintain the public’s trust, authoritative voices in an emergency must use the same message with the same tone of voice. “If one organization says one thing, and one expert another, we’ve lost trust. We can’t afford that in emergencies,” Wieder said.

When various trusted sources send out the same data and the same messages to the public, it works. “Having somebody external echoing your message brings a level of additional reliability to the information you are putting out that you might not otherwise have by yourself,” said María Laura Duarte, Head of Communications at Argentina’s Nuclear Regulatory Authority. “Coordinating that in advance is critical.”

In Argentina, like in many other countries, Government representatives, responders and experts from academia have joined forces to work on emergency communication, forming networks, so that in the event of an emergency they know exactly who to call. Involving and briefing the media in advance in preparation for possible incidents, and including them in response exercises, is also useful, Duarte said.

A lie can travel halfway around the world while the truth is still putting on its shoes

In addition to building trust, coordinated and consistent messaging helps combat misinformation. Following the Fukushima Daiichi accident, information shared by citizens was sometimes incorrect. “The perceived risk of radiation is very high,” Wieder said. “And that leads to misinformation.”

While it is next to impossible to respond to every rumour, communicators agree that the key is to focus on those that are most widespread, and to step in with several different partner organizations to root out inaccuracy.

“If you have to deal with misinformation, try to find a partner who is trusted, for example a doctor from a hospital, and let them clarify the situation to support your message,” said Cora Blankendaal, Senior Communications Advisor at the Nuclear Research and Consultancy Group (NRG), a company that operates a nuclear research reactor in the Netherlands.

Building trust, one day at a time

But building trust is not only important during emergencies.

“We have to communicate at all times, be it good or bad news,” Duarte said. Educating the population and communicating with them daily, in an open and transparent manner, will make them more prone to trusting the authorities’ messages—should an emergency occur. Social media has become an effective way to do this, since it allows communicators and the public to engage in two-way interactions and build a public dialogue, she said.

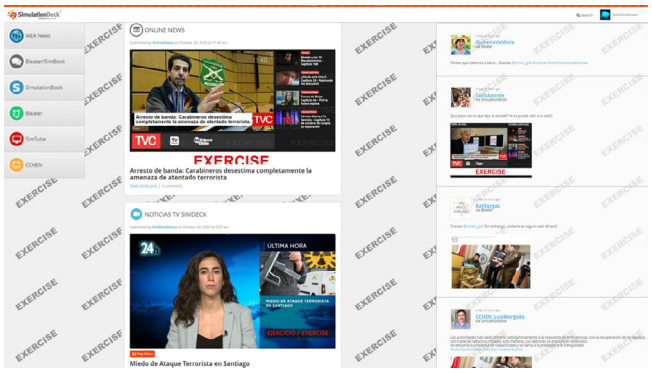
Earning public trust means “engaging representatives of the community in radiation measurement and communicating with the public continuously and transparently,” said Gaspar. IEC

Related Resource

- IAEA Bulletin- A Decade of Progress After Fukushima-Daiichi https://www.iaea.org/bulletin/62-1
- Arrangements for Public Communication in Preparedness and Response for a Nuclear or Radiological Emergency https://www.iaea.org/publications/13517/arrangements-for-public-communication-in-preparedness-and-response-for-a-nuclear-or-radiological-emergency

Under Pressure: Chile Tests its Social Media Response to Simulated Radiological Emergency

Laura Gil, IAEA Department of Nuclear Safety and Security



A capture of the social media simulator, adapted by the IAEA to test Chile's nuclear emergency response.

It is 9:35 in the morning and the computer screen, previously blank, is now flooded with social media posts. "A group of terrorists has stolen #radioactive sources in Santiago. Nobody should leave their homes!" Hundreds of similar posts appear on the various platforms of the social media simulator—mimicking Twitter, Facebook and YouTube. Some fictitious commenters ask for answers, others spread false news and rumours. Images of radioactive material go viral. Behind their screens, in Santiago de Chile, public information officers at the Chilean Nuclear Commission (CCHEN) start going through the waves of information, testing their capacity to respond during a real emergency.

This social media simulator exercise, which took place last month, was developed by the IAEA in coordination with CCHEN. The made-up scenario was simple: a van carrying radioactive material for industrial use was stolen in the capital Santiago. But the reaction in the media, false information, panicked social media users and some local officials sending out confusing messages made it all the more complex, rendering the communicators' job more difficult. CCHEN's biggest challenge during the exercise? To respond in a timely, clear and coordinated manner to ease the panic and, potentially, save lives—key components of emergency communication.

"Experiences like this undoubtedly help to strengthen our capacity to respond to a possible emergency," said Rommy Casanueva, Public Information Officer in charge of social media at CCHEN. "During the exercise, we received a lot of information in a very short time, so it was a good way to experience what happens in a real emergency, when one has to give a timely and adequate response to the public."

Check this photo album (https://www.flickr.com/photos/iaea_imagebank/albums/72157717108891002) to see what the exercise looked like.

Panic on social media

Before the exercise took place, public information officers at the IAEA's Incident and Emergency Centre trained CCHEN staff on how to use the social media simulator, which is a secure platform that simulates Facebook, Twitter, YouTube and other channels. "If you want an effective response in an emergency, you need social media," Casanueva said.

The platform allows public information teams working in emergency communication from anywhere in the world to realistically engage with a fabricated public via social media during a fictional emergency, enabling emergency procedures to be tested and evaluated with no risk of alarming the public, because the exercise takes place in a closed environment. As the Chilean exercise unfolded online, it could only be seen by the teams taking part in Santiago and Vienna.

Participants could see a monitoring dashboard that tracked the simulated content being published throughout the three-hour exercise. In addition to the simulated posts, dozens of fabricated news articles, TV news video clips and press releases were published to add pressure to CCHEN social media and communication experts.

Via the simulator, the public information team could post press releases from a website that simulated CCHEN's, in coordination with the IAEA's press statements published on a simulated IAEA webpage. The IAEA also published fabricated updates on a simulated USIE website, representing the Unified System for Information Exchange in Incidents and Emergencies, to keep up with the scenario.

The exercise proved that the coordination between the CCHEN team of communicators is well-defined. An improvement opportunity identified during the exercise is to prepare and approve social media content in advance to address possible emergency scenarios.

In emergency preparedness and response, the IAEA has defined responsibilities and specific functions mandated by its Statute, the Convention on Early Notification of a Nuclear Accident (the Early Notification Convention), the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency (the Assistance Convention) and relevant decisions of IAEA policy-making

Public information officers from CCHEN participate in the social media simulator exercise from Santiago de Chile. (Photo: CCHEN)

organs. Convention Exercises (ConvEx) are regularly conducted to strengthen the IAEA's response arrangements and capabilities, as well as those of national authorities and support the implementation of these conventions. IEC

PRESS RELEASE

IAEA INFORMED BY SLOVENIAN AUTHORITY THAT KRŠKO NUCLEAR POWER PLANT IN SAFE SHUTDOWN FOLLOWING EARTHQUAKE

29 December 2020

The International Atomic Energy Agency (IAEA) has been informed by the Slovenian Nuclear Safety Administration (SNSA) that the Krško Nuclear Power Plant automatically shut down and is in a safe state following the earthquake in Petrinja, Croatia, that took place today at 11:19 UTC.

The national regulatory authority also informed the IAEA that there are no environmental impacts and that preventive inspections of systems and equipment at the nuclear power plant are ongoing.

The Krško Nuclear Power Plant is located around 80 kilometres from the epicentre of today's earthquake.

The IAEA remains in contact with its counterparts in Slovenia.

UPDATE

IAEA INFORMED BY SLOVENIAN AUTHORITY THAT KRŠKO NUCLEAR POWER PLANT TO RECONNECT TO GRID TONIGHT

30 December 2020

The International Atomic Energy Agency (IAEA) has been informed by the Slovenian Nuclear Safety Administration (SNSA) that reactor start up procedures were initiated at the Krško nuclear power plant today, and that the plant is scheduled to resume connection to the grid at 21:00 UTC tonight. The power plant automatically shut down yesterday following an earthquake with the epicentre in the town of Petrinja, Croatia, around 80 kilometres away.

SNSA informed the IAEA that Krško's safety systems had operated as expected, and that detailed inspections yesterday had shown no damage to the power plant's systems and equipment due to the earthquake.

First Responders in Cyprus Readied for Radiological Emergencies

Omar Yusuf, IAEA Department of Technical Cooperation

Organized across three identical sessions to accommodate their shift schedule, the training events were attended by ambulance crew members of the Hazardous Area Response Team (HART) of the Cyprus Ambulance Service. (Photo: Dialogos News Cyprus)

When a radiological incident occurs, ambulances, police officers and fire fighters are often the first to reach the scene. Time is a critical factor in a radiological emergency and the actions taken by first responders in the minutes and hours following an incident can determine how minimal or extensive its impacts become.

By managing the medical response, allocating evacuation routes or securing forensic evidence, first responders have a unique role to play in protecting the public. In Cyprus, the IAEA has helped prepare first responders for radiological emergencies with precise skills and knowledge to effectively protect themselves, while responding to a crisis.

"Radiological emergencies can happen anywhere and can be triggered by different causes," said Ramon De la Vega, an IAEA Emergency Preparedness Coordinator, to ambulance crew members taking part in a recently completed IAEA virtual training course. Assigned to their country's Hazardous Area Response Team (HART), these first responders were instructed in the basic principles and best practices of radiation protection and emergency response over three, week-long sessions in January 2021.

"A prompt and effective response is essential to protecting the public against the hazard of radiation exposure stemming from these events. First responders play a key role in this response," explained De la Vega.

A recently completed series, the IAEA-supported virtual training events were organized through a technical cooperation project and held in cooperation with the Cyprus Ambulance Service. Designed for ambulance crews working for the Cyprus Ambulance Service's HART, the course covered the essential first steps in responding to a radiological emergency.

Tailored training for difficult times

To accommodate the working schedule of the ambulance staff, who worked in double shifts during this course, three sessions were organized—with the inaugural virtual training event held from 11 to 15 January followed by two more sessions in late January.

Beginning with a broad overview of relevant concepts and general on-scene guidance, the training courses explored the radiation protection principles which apply to all first responders, and the details on the specific functions and duties of ambulance crew and medical technicians.

"This was the first IEC virtual training course on First Responders conducted in Cyprus for the Ambulance Service," said Stacey Horvitz, an Associate Emergency Preparedness Officer in the IAEA's Incident and Emergency Centre (IEC). "Participants were able to learn not only the theoretical aspects of responses to nuclear or radiological emergencies, but they were also engaged in practical virtual sessions that enabled them to enhance their capabilities in various reality-based scenarios on first response," she said.

The participants learned how best to assign duties and allocate resources under moments of extreme pressure. They were briefed on basic hazards they might face and how best to protect themselves and those at the scene affected by radiation. The training also included a series of tabletop scenarios for medical personnel and response officials, simulating emergency scenarios that required both quick reactions and close coordination to address.

The training course was developed on the basis of the recently-revised Manual of First Responders to a Radiological Emergency, an IAEA publication first released in 2006. The revised edition reflects the latest technical guidance related to radiological emergencies and is expected to become publicly available in the first quarter of 2021. IEC

10 ambulance crew members attended the first session, while 13 and 11 additional medical first responders from the HART attended the second and third sessions respectively. (Photo: Cyprus Ambulance Service)

Related Resource

- Manual for First Responders to a Radiological Emergency https://www.iaea.org/publications/7606/manual-for-first-responders-to-a-radiological-emergency

From Exercise to Reality: IAEA, Finland Respond to Nuclear Power Plant Event One Day After Emergency Exercise

Sinead Harvey, IAEA Office of Public Information and Communication

IAEA Incident and Emergency System responders participate in an exercise with Finland to simulate a nuclear accident at the Olkiluoto nuclear power plant, Vienna, Austria. (Photo: K. Vargas/IAEA)

When your job is responding to emergencies, then exercises are routine. On 9 December, emergency responders from the IAEA responded to a simulated event at the Olkiluoto Nuclear Power Plant in Finland. Then, less than 24 hours later, the IAEA's Incident and Emergency Centre (IEC) was notified that a real event was taking place at the same power plant.

Guenther Winkler was the IAEA's on-call Emergency Response Manager that day. "I spent a few seconds thinking it was a mistake, but Finland was clear in their message that this was no longer part of the exercise."

The exercise held on 9 December was part of the IEC's annual calendar of exercises, performed in cooperation with designated national authorities from around the world. These exercises are aimed to review emergency response arrangements, provide practice and further improvements through lessons learned. "The next morning, when the real event occurred, the IEC activated into emergency response mode and we wasted no time in applying the same procedures we had tested just one day prior," added Winkler.

As it later became clear, the event posed no danger to the safety of people or the environment at any point and radiation levels at the plant and surroundings remained at normal levels.

Practice Makes Perfect

The Finnish Radiation and Nuclear Safety Authority (STUK) played the role of 'Accident State' during the exercise on 9 December. Over 70 other countries and international organizations played along to test their own emergency response procedures. STUK developed a scenario involving the Olkiluoto Nuclear Power Plant and their staff played in the exercise to test internal procedures.

For Petteri Tiippana, Head of STUK, the exercise was a success. “The expression ‘respond as you train, train as you respond’ underlines well the importance of training. Having had the exercise with Olkiluoto nuclear power plant just one day before the real event left us even better prepared to respond to it.” The next morning, they were to repeat many of the same initial response steps, only this time for real.

During the morning of 10 December, a malfunction in the purification system for the reactor cooling water at Unit 2 of the plant caused a temporary rise of radiation levels in the steam lines. Both STUK and the plant operator, Teollisuuden Voima Oyj (TVO), went into emergency response mode and the plant’s Unit 2 had automatically been shut down.

“When the event occurred in real life, we reacted immediately and decisively to respond in line with the severity of the first indications from the plant. High dose levels in the steam lines may indicate significant fuel damage in the reactor. Therefore, we immediately alerted our emergency organisation in its full capacity, notified relevant ministries, authorities, the public and the media”, said Tiippana.

At IAEA headquarters in Vienna, the IEC activated into Basic Response Mode and directed On-Call Officers to report to the operational area.

“What we learned in the exercise helped us swiftly respond the very next day,” said Kilian Smith, Emergency Response Manager during the exercise. “Over the last few months, the IAEA has amended some procedures to ensure we work effectively within restrictions related to COVID-19. These procedures were tested during the exercise and they worked perfectly on the day of the real event,” added Smith.

Once STUK acquired a full picture of the event’s cause, it went on to rate the event at “below scale/level 0” on the International Nuclear and Radiological Event Scale (INES), which is a tool to communicate the safety significance of nuclear and radiological events to the public. Events without a safety significance are rated “below scale/level 0”.

Exercises are not isolated activities but are an integral part of emergency preparedness. They enable responders to identify issues in emergency response arrangements and for them to be amended before a real event.

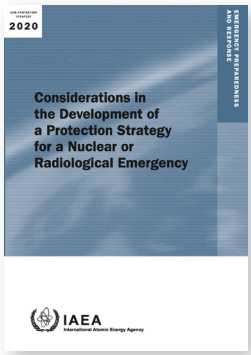
The IAEA will continue its series of exercises in 2021. From 26 to 27 October 2021, an international large scale nuclear emergency exercise, called “ConvEx-3”, will be conducted. IEC

Related Resources

- EPR exercises and training https://www.iaea.org/topics/epr-exercises-and-training
- Incident and Emergency Centre https://www.iaea.org/about/organizational-structure/department-of-nuclear-safety-and-security/incident-and-emergency-centre

PUBLICATIONS

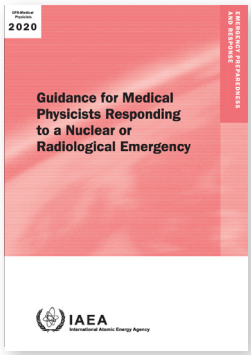
EPR SERIES



Considerations in the Development of a Protection Strategy for a Nuclear or Radiological Emergency

EPR-Protection Strategy 2020; ISSN 2518–685X; English Edition; 2021

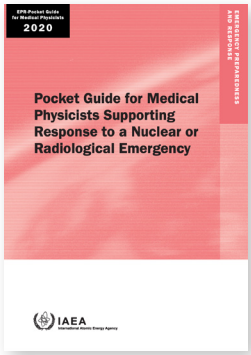
https://bit.ly/3tRn2fa



Guidance for Medical Physicists Responding to a Nuclear or Radiological Emergency

EPR-Medical Physicists (2020); ISSN 2518-685X; English Edition; 2020

https://bit.ly/34bJsNw

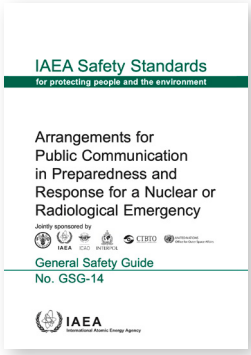


Pocket Guide for Medical Physicists Supporting Response to a Nuclear or Radiological Emergency

EPR-Pocket Guide for Medical Physicists (2020); ISSN 2518–685X; English Edition; 2020

https://bit.ly/3g3Lunr

SAFETY STANDARDS



Arrangements for Public Communication in Preparedness and Response for a Nuclear or Radiological Emergency

IAEA Safety Standards Series No. GSG-14; STI/PUB/1902; 978-92-0-109019-5; English Edition; 2020

https://bit.ly/3r81nOP

Note: Due to the current circumstances and the uncertainty surrounding the Coronavirus outbreak (COVID-19), IAEA events may be cancelled, postponed or held virtually. Please check the IAEA events web page (https://www.iaea.org/events) regularly for updates.

October

International Conference on the Development of Preparedness for National and International Emergency Response 2021 (EPR2021)

11 – 15 October 2021
Vienna, Austria

The purpose of the event is to enhance global awareness on various EPR topics with discussion over the progress made at national and international levels as well as the challenges encountered. The goal is to identify key priorities in further improving readiness for nuclear and radiological incidents and emergencies.
https://www.iaea.org/events/epr-2021

International Large Scale Nuclear Emergency Exercise (ConvEx-3)

26 – 27 October 2021

This 36-hour exercise is designed to evaluate the implementation of international emergency response arrangements and capabilities to respond to a severe nuclear emergency.

November

International Conference on a Decade of Progress after Fukushima-Daiichi: Building on the Lessons Learned to Further Strengthen Nuclear Safety

8 – 12 November 2021
Vienna, Austria

Results and achievements in strengthening nuclear safety over the last decade and ways to further enhance safety will be the focus of the conference. High level safety experts will discuss the implementation of the IAEA's Action Plan on Nuclear Safety and the role of formal international undertakings such as the Convention on Nuclear Safety. Participants will also address initiatives to further strengthen regulatory oversight, accident management, human and organisational factors, radiation safety systems, radiation monitoring, post-accident recovery and enhancing international efforts and cooperation as well as providing clear and understandable messages to the general public and stakeholders.
https://www.iaea.org/events/international-conference-on-a-decade-of-progress-after-fukushima-daiichi-building-on-the-lessons-learned-to-further-strengthen-nuclear-safety-2021