

# **Operations Manual for Incident and Emergency Communication**

**DATE EFFECTIVE: 20 FEBRUARY 2020**



**IAEA**

International Atomic Energy Agency

# IAEA SAFETY STANDARDS AND RELATED PUBLICATIONS

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# OPERATIONS MANUAL FOR INCIDENT AND EMERGENCY COMMUNICATION

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COSTA RICA	MADAGASCAR	TRINIDAD AND TOBAGO
CÔTE D'IVOIRE	MALAWI	TUNISIA
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EPR-IEComm (2019)

# OPERATIONS MANUAL FOR INCIDENT AND EMERGENCY COMMUNICATION

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INTERNATIONAL ATOMIC ENERGY AGENCY  
VIENNA, 2020

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# Foreword

The Convention on Early Notification of a Nuclear Accident (Early Notification Convention) and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency (Assistance Convention) are the primary legal instruments that establish an international framework to facilitate the exchange of information and the prompt provision of assistance in the event of a nuclear or radiological incident or emergency, regardless of its origin, with the aim of minimizing the consequences. The IAEA has specific functions assigned to it under these Conventions. The arrangements provided between the IAEA Secretariat, IAEA Member States and/or Parties to one or both Conventions, relevant international intergovernmental organizations (hereinafter referred to as ‘international organizations’) and other States for facilitating the implementation of these Conventions — specifically concerning those articles that are operational in nature — are documented in the Operations Manual for Incident and Emergency Communication (EPR–IEComm).

EPR–IEComm is the successor to the Emergency Notification and Assistance Technical Operations Manual (ENATOM), first issued on 18 January 1989. Since then, Member States, Parties to the Early Notification Convention and the Assistance Convention, relevant international organizations and other States have regularly received updates of the manual. EPR–IEComm covers the communication arrangements for points of contact identified under the Early Notification Convention and the Assistance Convention as well as the designated National Officers of the International Nuclear and Radiological Event Scale (INES). Points of Contact, central authorities or Competent Authorities (CAs) identified under other relevant conventions under the auspices of the IAEA may also be guided by the communications arrangements for nuclear or radiological incident and emergency communication covered by IEComm.

Since the last edition of EPR–IEComm was issued in 2012, several developments have warranted some modifications to the existing arrangements, such as: changes due to the lessons identified in exchanging information during incidents, emergencies and exercises; lessons identified in responding to requests for information and assistance; updates to the Unified System for Information Exchange in Incidents and Emergencies (USIE); and revision of the Joint Radiation Emergency Management Plan of the International Organizations (JPLAN).

The General Conference of the IAEA, in resolution GC(49)/RES/9, requested the Secretariat “to continue to review and, as necessary, streamline its mechanisms for reporting and for sharing information” and encouraged Member States “to do the same”. In 2007, the General Conference, in resolution GC(51)/RES/11, welcomed “the decision to develop a global, unified incident and emergency reporting system which combines the Emergency Notification and Assistance Technical Operations Manual (ENATOM) arrangements and the Nuclear Events Web-based System (NEWS) mechanism”. In resolution GC(54)/RES/7, the General Conference requested the Secretariat “to continue its efforts to finalize and implement a global and unified system for reporting and sharing information on nuclear and radiological accidents and incidents, and to act upon the feedback provided by Member States”.

The General Conference, in the same resolution, also encouraged all Member States “to enhance, where necessary, their own preparedness and response capabilities for nuclear and radiological emergencies, by improving capabilities to prevent accidents, to respond to emergencies and to mitigate any harmful consequences and, where necessary, to request support from the Secretariat or from other Member States

in developing national capabilities consistent with international standards,” and it urged “all Member States to take part in these exercises”. In 2011, the General Conference, in resolution GC(55)/RES/9, urged “Member States to reinforce emergency notification, reporting and information sharing arrangements and capabilities utilizing USIE”.

In the same year, the Ministerial Conference on Nuclear Safety adopted a Declaration that requested the IAEA Director General to develop an Action Plan on Nuclear Safety. In September 2011, the IAEA Action Plan on Nuclear Safety was adopted by the IAEA’s Board of Governors and was subsequently unanimously endorsed by the General Conference. The goal of the Action Plan was to strengthen nuclear safety worldwide. In the resolution adopting the Action Plan (GOV/2011/59), the IAEA’s role in responding to a nuclear emergency was expanded to include the role of providing Member States, international organizations and the general public with timely, clear, factually correct, objective and easily understandable information on the potential consequences of an emergency. This new function was to include an analysis of available information and a prognosis of possible scenarios based on the available evidence, scientific knowledge and the capabilities of Member States. The General Conference, in resolution GC(57)/RES/9, further clarified that the response role of the IAEA Secretariat in this context was to cover all nuclear or radiological emergencies.

In 2012, in resolution GC(56)/RES/9, the 56th General Conference of the IAEA requested the IAEA Secretariat, Member States and relevant international organizations “to address compatibility issues in the development of national and international emergency response mechanisms and procedures consistent with the IAEA’s safety standards”. Additionally, in 2015, the 59th General Conference emphasized in resolution GC(59)/RES/9 “the importance of the establishment, implementation, regular exercise and continuous improvement of national emergency preparedness and response measures, taking into account the IAEA Safety Standards”. It encouraged Member States “to strengthen their national, bilateral, regional and international emergency preparedness and response mechanisms, as appropriate, to facilitate timely information exchange during a nuclear emergency, and improve bilateral, regional and international cooperation to that effect”.

The 61st General Conference of the IAEA, in resolution GC(61)/RES/8, requested the Secretariat “to provide support to the States Parties to the Assistance Convention and the Early Notification Convention to strengthen technical and administrative procedures that enhance the implementation of both conventions effectively”. The 62nd General Conference of the IAEA, in resolution GC(62)/RES/9, requested the Secretariat “to continue to facilitate information exchange between interested Member States and Competent Authorities”.

EPR–IEComm (2019) is operational as of 20 February 2020. All States are invited to use the arrangements described in this manual when providing information about nuclear or radiological emergencies, in order to minimize the consequences of any emergency and to facilitate the prompt provision of information and assistance.

## NOTES FOR THE USER

EPR–IEComm (2019) describes arrangements operative as of 20 February 2020 and supersedes the previous edition, IEComm (2012). Responsible personnel or entities are encouraged to begin planning immediately to make any necessary changes to their operational systems. As of 20 February 2020, all copies of the previous edition of IEComm, including its electronic version, need to be removed from operational response systems and either archived or destroyed/deleted.

The 2019 edition of EPR–IEComm incorporates the following main changes:

- The term Competent Authority (CA) replaces the term National Competent Authority (NCA).
- Updates to USIE are reflected in this edition.
- Forms for reporting a nuclear or radiological emergency to the IAEA’s Incident and Emergency Centre (IEC) have been modified as follows:
  - Additional forms, such as those for requesting assistance (EMERCON RFA) and offering assistance (EMERCON OFA), have been included.
  - The Measurements and Protective Action (EMERCON MPA) form has been removed. Relevant measurement data need to be shared by uploading them onto the International Radiation Monitoring Information System (IRMIS).
  - The EMERCON Standard Report Form (EMERCON SRF) has been revised, and a new encryption feature within the section on Other Relevant Information has been added for exchange of sensitive information, including information related to nuclear security. If this feature is used, the content of the section on Other Relevant Information is encrypted and is made available only to the authorized staff of the CAs on USIE.
  - The Event Rating Form (ERF) has been revised by updating the information within the form for consistency with EPR–IEComm (2019).
  - A template for the EMERCON Request of Information Form (EMERCON RFI) has been developed and included in this edition of the manual.
- Planned or implemented protective actions and other response actions on-site and off-site during a nuclear or radiological emergency are to be communicated to the IEC using the EMERCON SRF.
- A new USIE feature has been introduced for publishing a Short Message (free text with a maximum of 2000 characters, with the possibility of attaching URLs and files) under a published event, which allows CAs for an Emergency Abroad (CA(A)s) to communicate information related to a nuclear or radiological emergency without having to submit a reporting form.
- The process of IAEA assessment and prognosis has been further elaborated.
- IRMIS as a tool for sharing, collecting and displaying radiation monitoring data has been described.
- The procedure for the designation of IRMIS Data Providers has been described.
- The ConvEx exercise regime has been revised to better reflect the scope and schedule of the exercises.

- The coordination needed between nuclear safety and security authorities participating in emergency response has been further elaborated.
- Event specific response actions have been revised and improved, and additional actions have been described as follows:
  - (i) Inter-agency coordination;
  - (ii) Additional response actions;
  - (iii) Termination of a nuclear or radiological emergency.
- EPR–IEComm (2012), Attachment 2, ‘List of All Official Contact Points’, has been replaced by a new Attachment 2, ‘IRMIS User Manual’. The ‘List of IAEA Contact Points’ is now available in USIE in electronic form and can be downloaded (see Section 3).
- A new Attachment 3 of EPR–IEComm (2019), the ‘International Radiological Information Exchange’ Format (IRIX), has been developed, which provides a reference description of the format, details of the format’s concept and the structure and representation of information using the Extensible Markup Language (XML).
- Terminological consistency has been improved: for example, in definitions, EMERCON forms and events types.

The IAEA IEC is ready to provide any clarification needed on the implementation of the arrangements described in this publication. The IEC can be reached through the various channels and contact numbers provided in Section 3.3 of this manual.

On an annual basis, the IAEA offers training on the application of EPR–IEComm to all Member States and relevant international organizations. These trainings are announced in advance; registrations should be sent to the IAEA through the established official channels.

## **DISCLAIMER**

The views expressed in this publication do not necessarily reflect those of the Governments of States that are IAEA Member States or of Parties to either or both of the Convention on Early Notification of a Nuclear Accident and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency, of other relevant international organizations or of the Governments of other States.

Guidance provided in this manual, describing good practices, represents expert opinion but does not constitute recommendations made on the basis of a consensus of Member States.

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# 1. INTRODUCTION

## 1.1. Background

The international emergency preparedness and response (EPR) framework consists of: (a) international legal instruments; (b) IAEA safety standards; and (c) operational arrangements.

### International legal instruments and operational arrangements

The main international legal instruments regarding EPR are the Early Notification Convention and the Assistance Convention [1]. These conventions are supplemented by bilateral or multilateral agreements between and among States and relevant international organizations. In addition, the Convention on Nuclear Safety [2] and the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management (Joint Convention) [3] address some aspects of EPR in relation to nuclear facilities and to management of spent fuel and radioactive waste, respectively. The Convention on the Physical Protection of Nuclear Material (CPPNM) [4] and its Amendment (A/CPPNM) [5] include provisions for States Parties to voluntarily exchange information, as and where appropriate, with the IAEA and other relevant international organizations in the case of nuclear security events within the scope of the CPPNM and A/CPPNM.

At the meeting of the IAEA's Board of Governors on 16 September 1987, the Secretariat informed the Board of its intention to develop an Emergency Notification and Assistance Technical Operations Manual (ENATOM). ENATOM conceptually linked the IAEA Secretariat, the IAEA Member States, Parties to the Early Notification Convention and the Assistance Convention [1], relevant international organizations and other States. ENATOM was designed to facilitate the practical implementation of those articles of the Early Notification Convention and the Assistance Convention that are operational in nature. In addition, it was designed to contain, in one manual, practical information with regard to when and how to invoke either or both of the Conventions.

ENATOM was first issued on 18 January 1989. Member States, Parties to the Early Notification Convention and the Assistance Convention, relevant international organizations and other States have since then received regular updates to the manual. Starting in December 2000, the IAEA reissued ENATOM on a regular basis to take account of new developments, including technological advances and operational concepts; the revision of international safety standards in the EPR area; lessons learned from exercises and from responding to incidents and emergencies; and feedback from Member States.

A secure website for communicating information on events between Competent Authorities (CAs), the ENAC website (Emergency Notification and the Assistance

Convention), was launched in 2002. In addition, in the same year, a website called NEWS (Nuclear Events Web-based System) was launched for the purpose of communicating to the public those events that had been rated on INES.

In 2004, the IAEA General Conference requested the Secretariat “to review its current mechanisms for reporting and sharing information about incidents and emergencies, with a view to streamlining them”. To this end, the Unified System of Information Exchange in Incidents and Emergencies (USIE) was introduced in 2011. It provided a common single web platform for the exchange of information about events, replacing ENAC and integrating the INES reporting. In 2012, ENATOM was renamed Operations Manual for Incident and Emergency Communication (IEComm) to reflect these changes.

In March 2002, the IAEA’s Board of Governors approved a Safety Requirements publication to be issued in accordance with the IAEA’s statutory function “to establish ... standards of safety for protection of health and minimization of danger to life and property”. It resulted in the publication of IAEA Safety Standards Series No. GS-R-2, Preparedness and Response for a Nuclear or Radiological Emergency. Jointly sponsored by seven international organizations, GS-R-2 established the requirements for an adequate level of preparedness and response for a nuclear or radiological emergency in any State. The implementation of these requirements was intended to minimize the consequences for people, property and the environment of any nuclear or radiological incident or emergency. Their fulfilment has contributed to efforts to ensure the harmonization of arrangements in the event of a transnational emergency.

In 2011, the IAEA Secretariat, Member States and relevant international organizations commenced a review of GS-R-2, based on developments since its publication in 2002. These included lessons identified in emergency exercises, experience gained in responding to nuclear or radiological emergencies — including the response to the Fukushima Daiichi accident in Japan in March 2011 — and recommendations made by the International Commission on Radiological Protection (ICRP). In November 2015, the revision of GS-R-2 was issued as part of the IAEA Safety Standards Series, entitled **Preparedness and Response for a Nuclear or Radiological Emergency, Safety Standards Series No. GSR Part 7** (hereinafter: GSR Part 7) [6]. It was jointly sponsored by 13 international organizations.

National authorities are expected to apply these updated requirements by adopting them or by revising existing legislation; by establishing and updating regulations and other arrangements; and, in particular, by assigning and updating responsibilities. Of special relevance to IEComm are certain requirements for the operational interface between States and the IAEA (paras. 5.18–5.22 and 5.69 of GSR Part 7 [6]).

It had also been recognized that there was a need for clarification of the interactions between various international organizations during a nuclear or radiological emergency. In this context, the **Joint Radiation Emergency Management Plan of the International Organizations (JPLAN)** was developed and first issued in December 2000. It has been updated periodically, with the latest updated version, co-sponsored by 18 international organizations, published in 2017 (EPR-JPLAN 2017) [7].

The EPR-JPLAN 2017 describes the arrangements of the participating international organizations for responding to a nuclear or radiological emergency and the measures for developing, maintaining, exercising and improving these arrangements.

**Safety Requirements on Preparedness and Response for a Nuclear or Radiological Emergency**

**Operational arrangements: Joint Radiation Management Plan of the International Organizations**

Its implementation is intended to assist in achieving a coordinated and harmonized international response to nuclear or radiological emergencies. It is not intended to interfere with or replace the emergency preparedness and response arrangements of international organizations (or States).

**Operational  
arrangements:  
Response and  
Assistance  
Network**

The **IAEA Response and Assistance Network** (RANET) is a network of States within the framework of the Assistance Convention that are capable and willing to provide, in a nuclear or radiological emergency and upon request by the affected State, specialized assistance in a timely and effective manner to help mitigate the consequences of the event.

The IAEA

RANET manual was developed and first issued in 2000<sup>1</sup>. It has been updated periodically, with the latest version, EPR–RANET 2018, published in 2018 [8].

The IAEA’s General Conference of 2017, in resolution GC(61)/RES/8, requested the “Secretariat to work with Member States to improve the IAEA Response and Assistance Network (RANET) to ensure that, if and when requested, timely and effective assistance can be provided”. The resolution further requested the Secretariat “to work with Member States to facilitate, as appropriate, bilateral and multilateral arrangements, and to enhance efforts to establish technical compatibility for international assistance”. It encouraged “Member States to register national capabilities in as many fields as possible in RANET”. Information on assistance utilizing the IAEA RANET can be found in Section 4.5.

**Operational  
arrangements:  
IAEA  
assessment  
and prognosis**

During a nuclear or radiological emergency, the factors and actions determining an effective response can change rapidly. An assessment of the situation and a prognosis of how the emergency might evolve support an effective emergency response. Through the adoption of the **Action Plan on Nuclear Safety** [9], the IAEA’s role in an emergency was expanded to include the prognosis of the potential evolution of an accident and an assessment of the possible consequences. The IAEA shares the results of its assessment and prognosis with Member States and international organizations to assist them in their own analysis of the situation. Overviews containing the results of the IAEA’s assessment and the likely development of the situation are also shared with the public. More information on assessment and prognosis can be found in Section 4.4.

The details of the IAEA assessment and prognosis process are described in a companion publication to this manual, entitled **Operations Manual for IAEA Assessment and Prognosis during a Nuclear or Radiological Emergency** (EPR–A&P 2019) [10].

**Nuclear  
security and  
nuclear safety**

Safety measures and security measures have in common the aim of protecting human life and health and the environment. As stated in the Fundamental Safety Principles (para. 1.10): “Safety measures and security measures must be designed and implemented in an integrated manner so that security measures do not compromise safety and safety measures do not compromise security” [11].

The requirements of GSR Part 7 “apply for preparedness and response for a nuclear or radiological emergency irrespective of the initiator of the emergency, whether the emergency follows a natural event, a human error, a mechanical or other failure, or a nuclear security event” (GSR Part 7, para. 1.16).

<sup>1</sup> Called Emergency Response Network (ERNET) at the time.

IEComm (2019) addresses the international emergency communication arrangements for a nuclear or radiological emergency regardless of its origin<sup>2</sup>, including those triggered by nuclear security events.

The 50th General Conference of the IAEA, in Resolution GC(50)/RES/10, welcomed the new operational capabilities of the IEC, with its role as “a global focal point for preparedness and response and as coordinator and facilitator of cooperation among Member States and international organizations in relation to nuclear and radiological incidents, regardless of whether such incidents arise from accident, negligence, or a deliberate act”.

Lessons identified in routine operations, exercises and actual responses have also been taken into account in revising this manual.

## 1.2. Objective

The overall objective of the IEComm manual is to improve international information exchange in nuclear or radiological emergencies between the IAEA’s Secretariat, the IAEA’s Member States, Parties to the Early Notification Convention and the Assistance Convention, relevant international organizations and other States by:

- providing necessary information to States and relevant international organizations for the development of operational arrangements for interacting with each other and with the IAEA’s Secretariat;
- defining clear operational arrangements for international exchange of information in nuclear or radiological incidents or emergencies<sup>3</sup>.

## 1.3. Scope

IEComm describes, in a practical manner, arrangements regarding the notification and reporting, the exchange of official information (including data and information that need to be exchanged during the assessment and prognosis process) and the timely provision of assistance, upon request, in response to events with actual, potential or perceived radiological consequences that necessitate response actions or that raise media interest. These arrangements apply to the IAEA Secretariat, Member States, Parties to the Early Notification Convention and the Assistance Convention, relevant international organizations and other States. IEComm also provides a basis for the development of sound preparedness for implementation of the above-mentioned actions in a nuclear or radiological emergency.

The IEComm arrangements have been developed in support of the Early Notification Convention and the Assistance Convention<sup>4</sup>. They are consistent with GSR Part 7 [6],

<sup>2</sup> That is, irrespective of whether it arises from an accident, a natural disaster, negligence, a nuclear security event or any other cause.

<sup>3</sup> Hereinafter, the term ‘nuclear or radiological emergency’ is used instead of ‘nuclear or radiological incident or emergency’. It should be noted that an incident can be caused intentionally [12]; therefore, the term ‘nuclear or radiological emergency’ is appropriate, as nuclear or radiological emergencies include events caused intentionally (i.e. nuclear security events).

<sup>4</sup> They may also facilitate the implementation of other relevant Conventions under the auspices of the IAEA, if applicable.

the EPR-JPLAN [7], the IAEA EPR-RANET manual [8] and the forthcoming EPR-A&P 2019 manual [10].

This manual also outlines the communication arrangements for INES National Officers<sup>5</sup>, who, for the purposes of IEComm, are defined as IAEA Contact Points (CPs) disseminating information about events rated on INES. However, this manual does not describe the INES rating methodology, which is presented in detail in the INES User's Manual [13].

The IEComm arrangements for notification, reporting and exchange of official information should not be confused with other reporting systems such as the IAEA's Incident Reporting System (IRS) or the Incident and Trafficking Database (ITDB).

1

## 1.4. Structure

EPR-IEComm 2019 consists of four sections:

- Section 1** Section 1 describes the background, objective, scope and structure of the manual, together with definitions of specific terms and abbreviations/acronyms.
- Section 2** Section 2 provides basic information on the IAEA's Incident and Emergency System (IES), describing the response objectives, planning basis and concept of operations.
- Section 3** Section 3 describes the designation of IAEA CPs, their expected functions, the arrangements that need to be prepared in the respective national languages, the emergency communication channels with the IEC and the arrangements in place for exercises. This section also covers the actions that States using INES need to take.
- Section 4** Section 4 provides an overview of the actions (operational arrangements) expected from States, relevant international organizations and the IAEA Secretariat in response to nuclear or radiological emergencies.

EPR-IEComm (2019) has three Attachments, which are issued separately:

- Attachment 1** **Operations Manual for Incident and Emergency Communication — Contact Details, Checklists and Forms.** This attachment is restricted in its distribution and is only available to IAEA CPs (see Section 3 regarding the designation of IAEA CPs).
- Attachment 2** **International Radiation Monitoring Information System (IRMIS) User Manual, Version 3.0.0.** This attachment covers IRMIS, its concept, scope, description and general operating instructions.
- Attachment 3** **International Radiological Information Exchange (IRIX) Format, Reference Description, Version 1.0.** This attachment describes IRIX, its structure and the representation of conceptual information in Extensible Markup Language (XML).

In addition to this manual, the EPR-JPLAN 2017 [7], EPR-RANET 2018 [8] and EPR-A&P 2019 [10] constitute an integral part of the international emergency preparedness and response framework.

The USIE User's Manual is available online at <https://iec.iaea.org/usie> [14].

<sup>5</sup> The term INES National Officer(s) is meant to be understood as INES National Officer(s) and Alternate(s).

## 1.5. Definitions<sup>6</sup>

<b>Accident</b>	Any unintended event, including operating errors, equipment failures and other mishaps, the consequences or potential consequences of which are not negligible from the point of view of protection and safety [12].
<b>Accident State</b>	The State where an event resulting in a nuclear or radiological emergency occurred.
<b>Advisory message</b>	An official message to a national or international organization by an authorized authority providing details of an actual, potential or perceived nuclear or radiological emergency, without the explicit obligation under international treaty or expectation according to international safety standards to do so. The purpose is, inter alia: (1) to provide relevant information about a nuclear or radiological emergency as early as possible in order to minimize transboundary radiological consequences; (2) to pre-empt legitimate requests for information from other States; <sup>7</sup> (3) to prompt the IAEA to offer its good offices; <sup>8</sup> (4) to provide advance warning to the IAEA, other participating organizations and States of a developing situation, so that they can be ready to respond should the situation worsen; <sup>9</sup> (5) for the IAEA, other participating organizations and States to initiate a response and/or provide advice to the public or media on a developing situation of actual, potential or perceived radiological significance; (6) to alert the IAEA's emergency response staff.
<b>Alert channel</b>	The primary emergency communication channel (i.e. electronic mail, facsimile and the SMS function of mobile telephones) by which IAEA CPs choose to receive an alert message when an EMERCON message form is published on USIE with a request for confirmation.
<b>Arrangements (Emergency arrangements)</b>	The integrated set of infrastructural elements, put in place at the preparedness stage, that are necessary to provide the capability of performing a specified function or task required in response to a nuclear or radiological emergency [6].
<b>Authentication</b>	The process of confirming that a message received originates from an IAEA CP.
<b>Competent Authority (CA)</b>	An IAEA CP in a State or international organization that has one of the following competencies and responsibilities: notify/report a nuclear or radiological emergency to the IAEA; receive notifications from other States or the IAEA on nuclear or radiological emergencies that could affect its State; or make and receive requests for and accept offers of assistance. Competent Authorities (CAs) include the Competent Authorities for a Domestic Emergency (CA(D)s) and the Competent Authorities for an Emergency Abroad (CA(A)s). In relation to matters of nuclear or radiological emergencies, they also include Competent Authorities for Other Conventions under the auspices of the IAEA (CAOC).

<sup>6</sup> The absence of a reference in the definition means that it is used for the purposes of this manual.

<sup>7</sup> See article 2 of the Early Notification Convention [1].

<sup>8</sup> See article 5 of the Assistance Convention [1].

<sup>9</sup> In order to enable States and organizations, such as the IAEA, to carry out their functions under article 4 of the Early Notification Convention [1].

<b>EMERCON</b>	A descriptor referring to the official system for issuing and receiving notifications, urgent information exchange, request for and provision of assistance through the IAEA's Incident and Emergency Centre in the event of a nuclear or radiological emergency.
<b>Emergency</b>	A non-routine situation or event that necessitates prompt action, primarily to mitigate a hazard or adverse consequences for human life, health, property or the environment. This includes nuclear and radiological emergencies and conventional emergencies such as fires, release of hazardous chemicals, storms or earthquakes. It includes situations for which prompt action is warranted to mitigate the effects of a perceived hazard [6].
<b>Exercise</b>	Any practical implementation of response plans and procedures in a simulated situation. This includes drills, table-top exercises, partial and full-scale exercises as well as field exercises. The preparation and conduct of each exercise vary in complexity, scope and objectives.
<b>IAEA assessment and prognosis</b>	Provision by the IAEA Secretariat to Member States, international organizations and the general public of timely, clear, factually correct, objective and easily understandable information during a nuclear emergency on its potential consequences, including analysis of the available information, and prognoses of possible scenarios based on evidence, scientific knowledge and the capabilities of Member States [9].
<b>IAEA Contact Point (CP)</b>	IAEA CPs consist of: National Warning Points (NWP); Points of Contact, central authorities or CAs of States Parties as defined in the Early Notification Convention, the Assistance Convention and other relevant Conventions under the auspices of the IAEA; Permanent Missions of the Member States to the IAEA (States' PMs); INES National Officers; IRMIS Data Providers; and CPs of relevant international organizations.
<b>Incident</b>	Any unintended event — including operating errors, equipment failures, initiating events, accident precursors, near misses or other mishaps — or unauthorized act, malicious or non-malicious, the consequences or potential consequences of which are not negligible from the point of view of protection and safety [12].
<b>INES National Officer</b>	The named person who is officially designated by the Government of his/her State to communicate events rated on INES to the international community, via USIE and NEWS, on behalf of the State.
<b>National Warning Point (NWP)<sup>10</sup></b>	An IAEA CP that is staffed or able to be alerted at all times for promptly responding to, or initiating a response to, an incoming notification, advisory message, request for assistance or request for verification of a message, as appropriate, from the IAEA. The NWP role in a nuclear or radiological emergency is assigned to a <b>single</b> institution in a State that is authorized by its Government to perform these functions.
<b>Notification</b>	(1) A report submitted promptly to a national or international authority providing details of an emergency or a possible emergency, for example as required by the Early Notification Convention [6].

<sup>10</sup> In the Early Notification Convention and the Assistance Convention, the term 'point of contact' is used. However, the term was found to be confusing and was often misused by Parties. The term 'National

(2) A set of actions taken upon detection of emergency conditions with the purpose of alerting all organizations with responsibility for emergency response in the event of such conditions [6].

**Notifying State**

The State Party that is responsible for notifying (see 'Notification') potentially affected States and the IAEA of an event of actual, potential or perceived radiological significance for other States. This includes: (1) the State Party that has jurisdiction or control over the facility or activity (including space objects) involved in the event in accordance with article 1 of the Early Notification Convention; and (2) the State that initially detects or discovers evidence of a transnational emergency, for example by: detecting significant increases in atmospheric radiation levels of unknown origin; detecting contamination in transboundary shipments; discovering a dangerous source that may have originated in another State; or diagnosing clinical symptoms that may have resulted from exposure outside the State [6].

**Nuclear or radiological emergency**

An emergency in which there is, or is perceived to be, a hazard due to: (a) the energy resulting from a nuclear chain reaction or from the decay of the products of a chain reaction; (b) radiation<sup>11</sup> exposure [6].

**Nuclear security event**

An event that has potential or actual implications for nuclear security that must be addressed [6].

**Offer of good offices**

A message sent by the IAEA to the CPs of States affected or potentially affected by a nuclear or radiological emergency whereby the IAEA offers its services.

**Public Information Officer**

The person who is responsible for providing transparent, timely, clear and accurate information to and to communicate with the public and the news media.

**Public statement**

An official statement updating the public and media about an event, issued by local, regional, national or international authorities or organizations. Public statements contain unrestricted information and may be issued, inter alia, in the form of press releases and updates, media briefings and advisories, social media and website postings or through other public information channels.

**Relevant international organization**

An international organization<sup>12</sup> that, according to the information provided to the IAEA, has a significant legal or statutory role and/or the capability to provide advice or assistance in the event of a nuclear or radiological emergency.

**Reporting State**

The State that informs potentially affected States and the IAEA of an event of actual, potential or perceived radiological significance. The State sends the information voluntarily (see 'Advisory message'), without a legal obligation to do so.

**Significant transboundary release**

A release of radioactive material to the environment that may result in doses or levels of contamination beyond national borders from the release which exceed generic criteria for protective actions and other response actions, including food restrictions and restrictions on trade [6].

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Warning Point' is used here to make it clear that this is the CP that needs to be available for 24 hours per day, 7 days per week, for receipt of a notification, an advisory report or a request for information or assistance.

<sup>11</sup> In IAEA publications, the term 'radiation' normally only refers to ionizing radiation. The IAEA has no statutory responsibilities in relation to non-ionizing radiation.

<sup>12</sup> The relevant international organizations are specified in the EPR-JPLAN [7].

<b>State Party / States Parties</b>	A State or States having deposited an instrument of ratification, acceptance, approval or accession to the Early Notification Convention and/or the Assistance Convention.
<b>Transnational emergency</b>	A nuclear or radiological emergency of actual, potential or perceived radiological significance for more than one State. These may include: (1) a significant transboundary release of radioactive material (however, a transnational emergency does not necessarily imply a significant transboundary release of radioactive material); (2) a general emergency at a facility or other event that could result in a significant transboundary release (atmospheric or aquatic) of radioactive material; (3) discovery of the loss or illicit removal of a dangerous source that has been transported across, or is suspected of having been transported across, a national border; (4) an emergency resulting in significant disruption to international trade or travel; (5) an emergency warranting the taking of protective actions for foreign nationals or embassies in the State in which it occurs; (6) an emergency resulting in or potentially resulting in severe deterministic effects and involving a fault and/or problem (such as in equipment or software) that could have serious implications for safety internationally; and (7) an emergency resulting in, or potentially resulting in, great concern among the population of more than one State owing to the actual or perceived radiological hazard [6]. See ‘Significant transboundary release’.
<b>USIE Administrator</b>	The person who has (a) the right to register and give USIE access to all designated USIE Users within their respective CP (for users who use the same email domain); and (b) the responsibility and the right to keep the organizations’ contact details up to date, check the validity of registered USIE Users and keep other settings (such as alert channels) current on the USIE and USIE Exercise websites.
<b>USIE Users</b>	All staff and individuals who are authorized by their respective CPs to have access to the USIE website. The CPs are responsible for making sure that a sufficient number of users in their organizations have access to the USIE website, and that users have been assigned appropriate roles to be able to perform critical functions at any time, e.g. submitting an event notification and acknowledging its receipt.
<b>Status Summary Report (SSR)</b>	A report prepared periodically by the IAEA during a nuclear or radiological emergency containing the latest summary of authenticated information from an Accident State and other relevant States and the results of IAEA assessment and prognosis. The SSR typically includes dedicated sections on issues such as the status of the facility, the status of radiological conditions (on-site and off-site) and the status of implemented protective actions (on-site and off-site). Other sections could be included in the SSR depending on the type of the event addressed in the response.
<b>Verification</b>	The process of confirming that the information in a message is properly understood (see also ‘Authentication’).

## 1.6. Abbreviations

AAP	Assistance Action Plan
CA	Competent Authority
CA(A)	Competent Authority for an Emergency Abroad, according to the Early Notification Convention and the Assistance Convention
CA(D)	Competent Authority for a Domestic Emergency, according to the Early Notification Convention and the Assistance Convention
CAOC	Competent Authority for Other Conventions under the auspices of the IAEA
CTBTO	Comprehensive Nuclear-Test-Ban Treaty Organization
DIRAC	Directory of RAdiotherapy Centres
EC	European Commission (of the European Union)
EMERCON	Emergency Convention
EMERCON SRF	EMERCON Standard Report Form
EMERCON GENF	EMERCON General Emergency at Nuclear Facility Form
EMERCON OFA	EMERCON Offer of Assistance Form
EMERCON RFA	EMERCON Request for Assistance Form
EMERCON RFI	EMERCON Request for Information Form
ENATOM	Emergency Notification and Assistance Technical Operations Manual
ENF	Event Notice Form
EPR	Emergency Preparedness and Response
EPR-IEComm	Operations Manual for Incident and Emergency Communication
EPRIMS	EPR Information Management System
ERF	Event Rating Form (for submitting INES rated events)
ERM	Emergency Response Manager
EU	European Union
EURDEP	European Radiological Data Exchange Platform
FAO	Food and Agriculture Organization of the United Nations
GC(YY)/RES/X	IAEA General Conference (YY = session number)/resolution/ (X = number)
IACRNE	Inter-Agency Committee on Radiological and Nuclear Emergencies
IAEA	International Atomic Energy Agency
IAEA CPs (CPs)	IAEA Contact Points (Contact Points)
ICSRS	International Catalogue of Sealed Radioactive Sources and Devices
IEC	Incident and Emergency Centre (of the IAEA)
IES	Incident and Emergency System (of the IAEA)

INES	International Nuclear and Radiological Event Scale
INTERPOL	International Criminal Police Organization
IRIX	International Radiological Information Exchange
IRMIS	International Radiation Monitoring Information System
IRS	Incident Reporting System
ITDB	Incident and Trafficking Database
NACs	National Assistance Capabilities
NEWS	Nuclear Events Web-based System
NPP	Nuclear Power Plant
NWP	National Warning Point
OPIC	Office of Public Information and Communication (of the IAEA)
PAHO	Pan American Health Organization
PM	Permanent Mission of a Member State to the IAEA
PRIS	Power Reactor Information System
RANET	Response and Assistance Network (of the IAEA)
RTI	Reactor Technical Information
RSMC	Regional Specialized Meteorological Centre (of the WMO)
SCC	Security Control Centre of the UN Security and Safety Services
SSR	Status Summary Report
UNOOSA	United Nations Office for Outer Space Affairs
USIE	Unified System for Information Exchange in Incidents and Emergencies
UTC	Universal Time Coordinated
WebECURIE	Web-based European Community Urgent Radiological Information Exchange System
WHO	World Health Organization
WMO	World Meteorological Organization

## 1.7. Member States and Parties

Status as at 1 September 2019. The latest status can be found on the IAEA website.

- 1 = Member State of the IAEA                      2 = Party to the Early Notification Convention  
 3 = Party to the Assistance Convention        4 = Member State that uses INES  
 5 = Not a Member State of the IAEA         6 = International organization

1

AFGHANISTAN <sup>1</sup>	CONGO <sup>1</sup>	INDIA <sup>1,2,3,4</sup>	MOZAMBIQUE <sup>1,2,3</sup>	SOUTH AFRICA <sup>1,2,3,4</sup>
ALBANIA <sup>1,2,3,4</sup>	COSTA RICA <sup>1,2,3,4</sup>	INDONESIA <sup>1,2,3,4</sup>	MYANMAR <sup>1,2</sup>	SPAIN <sup>1,2,3,4</sup>
ALGERIA <sup>1,2,3,4</sup>	CÔTE D'IVOIRE <sup>1</sup>	IRAN, ISLAMIC REPUBLIC OF <sup>1,2,3,4</sup>	NAMIBIA <sup>1</sup>	SRI LANKA <sup>1,2,4</sup>
ANDORRA <sup>5</sup>	CROATIA <sup>1,2,3,4</sup>	IRAQ <sup>1,2,3</sup>	NEPAL <sup>1</sup>	SUDAN <sup>1</sup>
ANGOLA <sup>1,2</sup>	CUBA <sup>1,2,3</sup>	IRELAND <sup>1,2,3,4</sup>	NETHERLANDS <sup>1,2,3,4</sup>	SWEDEN <sup>1,2,3,4</sup>
ANTIGUA AND BARBUDA <sup>1</sup>	CYPRUS <sup>1,2,3,4</sup>	ISRAEL <sup>1,2,3</sup>	NEW ZEALAND <sup>1,2,3</sup>	SWITZERLAND <sup>1,2,3,4</sup>
ARGENTINA <sup>1,2,3,4</sup>	CZECH REPUBLIC <sup>1,2,3,4</sup>	ITALY <sup>1,2,3,4</sup>	NICARAGUA <sup>1,2,3</sup>	SYRIAN ARAB REPUBLIC <sup>1,2,3,4</sup>
ARMENIA <sup>1,2,3,4</sup>	DEMOCRATIC REPUBLIC OF THE CONGO <sup>1,4</sup>	JAMAICA <sup>1</sup>	NIGER <sup>1,3</sup>	TAJIKISTAN <sup>1,2,3</sup>
AUSTRALIA <sup>1,2,3,4</sup>	DENMARK <sup>1,3,4</sup>	JAPAN <sup>1,2,3,4</sup>	NIGERIA <sup>1,2,3,4</sup>	THAILAND <sup>1,2,3,4</sup>
AUSTRIA <sup>1,2,3,4</sup>	DJIBOUTI <sup>1</sup>	JORDAN <sup>1,2,3,4</sup>	NORTH MACEDONIA <sup>1,2,3,4</sup>	TOGO <sup>1</sup>
AZERBAIJAN <sup>1</sup>	DOMINICA <sup>1</sup>	KAZAKHSTAN <sup>1,2,3,4</sup>	NORWAY <sup>1,2,3,4</sup>	TONGA <sup>5</sup>
BAHAMAS <sup>1</sup>	DOMINICAN REP. <sup>1,2</sup>	KENYA <sup>1,4</sup>	OMAN <sup>1,2,3</sup>	TRINIDAD AND TOBAGO <sup>1</sup>
BAHRAIN <sup>1,2,4</sup>	ECUADOR <sup>1</sup>	KOREA, REPUBLIC OF <sup>1,2,3,4</sup>	PAKISTAN <sup>1,2,3,4</sup>	TUNISIA <sup>1,2,3</sup>
BANGLADESH <sup>1,2,3,4</sup>	EGYPT <sup>1,2,3,4</sup>	KUWAIT <sup>1,2,3,4</sup>	PALAU <sup>1</sup>	TURKEY <sup>1,2,3,4</sup>
BARBADOS <sup>1</sup>	EL SALVADOR <sup>1,2,3</sup>	KYRGYZSTAN <sup>1</sup>	PANAMA <sup>1,2,3</sup>	TURKMENISTAN <sup>1</sup>
BELARUS <sup>1,2,3,4</sup>	EQUATORIAL GUINEA <sup>5</sup>	LAO PEOPLE'S DEMOCRATIC REPUBLIC <sup>1,2,3</sup>	PAPUA NEW GUINEA <sup>1</sup>	UGANDA <sup>1</sup>
BELGIUM <sup>1,2,3,4</sup>	ERITREA <sup>1</sup>	LATVIA <sup>1,2,3,4</sup>	PARAGUAY <sup>1,2,3</sup>	UKRAINE <sup>1,2,3,4</sup>
BELIZE <sup>1</sup>	ESTONIA <sup>1,2,3</sup>	LEBANON <sup>1,2,3,4</sup>	PERU <sup>1,2,3,4</sup>	UNITED ARAB EMIRATES <sup>1,2,3,4</sup>
BENIN <sup>1</sup>	ESWATINI <sup>1</sup>	LESOTHO <sup>1,2,3</sup>	PHILIPPINES <sup>1,2,3</sup>	UNITED KINGDOM <sup>1,2,3,4</sup>
BOLIVIA, PLURINATIONAL STATE OF <sup>1,2,3</sup>	ETHIOPIA <sup>1</sup>	LIBERIA <sup>1</sup>	POLAND <sup>1,2,3,4</sup>	UNITED REPUBLIC OF TANZANIA <sup>1,2,3</sup>
BOSNIA AND HERZEGOVINA <sup>1,2,3</sup>	FIJI <sup>1</sup>	LIBYA <sup>1,2,3</sup>	PORTUGAL <sup>1,2,3,4</sup>	UNITED STATES OF AMERICA <sup>1,2,3,4</sup>
BOTSWANA <sup>1,2,3</sup>	FINLAND <sup>1,2,3,4</sup>	LIECHTENSTEIN <sup>1,2,3</sup>	QATAR <sup>1,2,3</sup>	URUGUAY <sup>1,2,3,4</sup>
BRAZIL <sup>1,2,3,4</sup>	FRANCE <sup>1,2,3,4</sup>	LITHUANIA <sup>1,2,3,4</sup>	REPUBLIC OF MOLDOVA <sup>1,2,3</sup>	UZBEKISTAN <sup>1</sup>
BRUNEI DARUSSALAM <sup>1</sup>	GABON <sup>1,2,3</sup>	LUXEMBOURG <sup>1,2,3,4</sup>	ROMANIA <sup>1,2,3,4</sup>	VANUATU <sup>1</sup>
BULGARIA <sup>1,2,3,4</sup>	GEORGIA <sup>1,2,3,4</sup>	MADAGASCAR <sup>1,2,3</sup>	RUSSIAN FEDERATION <sup>1,2,3,4</sup>	VENEZUELA, BOLIVARIAN REPUBLIC OF <sup>1,2</sup>
BURKINA FASO <sup>1,2,3</sup>	GERMANY <sup>1,2,3,4</sup>	MALAWI <sup>1</sup>	RWANDA <sup>1</sup>	VIET NAM <sup>1,2,3,4</sup>
BURUNDI <sup>1</sup>	GHANA <sup>1,2,3</sup>	MALAYSIA <sup>1,4</sup>	SAINT LUCIA <sup>1</sup>	YEMEN <sup>1</sup>
CAMBODIA <sup>1,2</sup>	GREECE <sup>1,2,3,4</sup>	MALI <sup>1,2,3</sup>	SAINT VINCENT & THE GRENADINES <sup>1,2,3</sup>	ZAMBIA <sup>1</sup>
CAMEROON <sup>1,2,3</sup>	GRENADA <sup>1</sup>	MALTA <sup>1</sup>	SAN MARINO <sup>1</sup>	ZIMBABWE <sup>1,4</sup>
CANADA <sup>1,2,3,4</sup>	GUATEMALA <sup>1,2,3,4</sup>	MARSHALL ISLANDS <sup>1</sup>	SAUDIA ARABIA <sup>1,2,3,4</sup>	EUROPEAN COMMISSION <sup>2,3,4,5,6</sup>
CAPE/CABO VERDE <sup>5</sup>	GUINEA <sup>5</sup>	MAURITANIA <sup>1,2,3</sup>	SENEGAL <sup>1,2,3</sup>	FAO <sup>2,3,5,6</sup>
CENTRAL AFRICAN REPUBLIC <sup>1</sup>	GUINEA-BISSAU <sup>5</sup>	MAURITIUS <sup>1,2,3</sup>	SERBIA <sup>1,2,3,4</sup>	WHO <sup>2,3,5,6</sup>
CHAD <sup>1</sup>	GUYANA <sup>1</sup>	MEXICO <sup>1,2,3,4</sup>	SEYCHELLES <sup>1</sup>	WMO <sup>2,3,5,6</sup>
CHILE <sup>1,2,3,4</sup>	HAITI <sup>1</sup>	MONACO <sup>1,2,3</sup>	SIERRA LEONE <sup>1</sup>	
CHINA <sup>1,2,3,4</sup>	HOLY SEE <sup>1</sup>	MONGOLIA <sup>1,2,3</sup>	SINGAPORE <sup>1,2,3</sup>	
COLOMBIA <sup>1,2,3</sup>	HONDURAS <sup>1</sup>	MONTENEGRO <sup>1,2,3,4</sup>	SLOVAKIA <sup>1,2,3,4</sup>	
	HUNGARY <sup>1,2,3,4</sup>	MOROCCO <sup>1,2,3</sup>	SLOVENIA <sup>1,2,3,4</sup>	
	ICELAND <sup>1,2,3,4</sup>			

## 2. THE IAEA INCIDENT AND EMERGENCY SYSTEM

### 2.1. Framework

To meet its responsibilities under the Early Notification Convention and the Assistance Convention, the IAEA Secretariat needs to be prepared to respond appropriately and efficiently to any incident or emergency, irrespective of its origin, that may have actual, potential or perceived radiological consequences to health, property or the environment, and which requires the IAEA Secretariat's involvement, including responding to requests for assistance.

The prime roles of the IAEA Secretariat in response to nuclear or radiological emergencies are:

- Provision of notification and exchanging and sharing of official information with States and international organizations;
- Performing an assessment of potential consequences and a prognosis of the likely emergency progression;
- Timely coordination and provision of assistance or advice, upon request, to States/international organizations;
- Provision of timely, clear, factually correct, objective, consistent and easily understandable public information;
- Coordination of the inter-agency response.

The IAEA fulfils these roles through its Incident and Emergency System (IES) and the Incident and Emergency Centre (IEC). The IEC is the IAEA's focal point with regard to preparedness for and response to a nuclear or radiological incident or emergency, irrespective of its origin. It is also the custodian of the IES.

The IAEA emergency response is organized through: (1) a 24/7 warning point; (2) an on-call system; (3) an on-duty system; and (4) an IES Steering Group.

The Security Control Centre (SCC), which is located in the Vienna International Centre, serves as an integrated 24/7 warning point and telecommunications backup for the IEC.

Media and public requests for information, received by the Secretariat's staff, are dealt with by the IAEA's Office of Public Information and Communication (OPIC): [www.iaea.org/press](http://www.iaea.org/press)

#### NOTE

**The IAEA can only ensure an immediate response to a message about a nuclear or radiological emergency if that message is sent directly to the IEC's 24/7 emergency communication channels.**

**It is the responsibility of the Accident State to directly send a notification message, as required, to nearby States in time for the implementation of urgent protective actions. Consequently, the IAEA urges relevant States to put in place bilateral arrangements so that a State notifies directly potentially affected States of an emergency that warrants urgent protective actions.**

The on-call system ensures that the initial response to any incoming message is timely and adequate. The following on-call officers are available 24/7 to facilitate and coordinate the initial response: an emergency response manager (ERM); a nuclear installation specialist; a radiation safety specialist; a nuclear security specialist; an external event specialist; a public information officer; and a logistics support officer.

The on-duty system ensures that the Secretariat's response is effective and commensurate with the nature and magnitude of the emergency.

The IES Steering Group oversees the Secretariat's response and guides the response on matters of policy.

To ensure a coordinated response, all response actions, including the provision of assistance, are performed within the IES.

The IAEA emergency response arrangements are documented in the IES documentation system. This system includes prescriptive and descriptive documents, tools and records. Prescriptive documents cover policy issues, objectives, emergency response authorities, as well all emergency preparedness and response requirements. Descriptive documents, such as the internal emergency response plan, its appendices (explaining the setup of the IES) and annexes (describing what actions are carried out), contain basic arrangements of the IES. Tools are documents (e.g. response checklists, task and equipment instructions, forms) that deal with actions for staff during an emergency response and their day to day activities.

The IES contains a training and exercise programme for IAEA staff members who participate in the system. They need to go through initial training, which is specialized for every response position, and take part in an emergency response exercise. Both the training and the exercise have to be attended before an IAEA staff member is qualified to participate in the IES. The exercise programme consists of drills and full response exercises. A drill is a small scale exercise, normally involving small groups in a learning process designed to ensure that essential skills and specific knowledge are available for the accomplishment of certain tasks. A full response exercise is a large scale exercise involving most of the organizations, facilities, resources and personnel that would be utilized in an actual emergency. The purpose of the full scale exercise is to test, verify

and evaluate the overall performance of the IES — including its organization, concept of operations and coordination — against established objectives.

## 2.2. Concept of operations

The IES operates in three modes: *Normal/Ready*<sup>13</sup> mode, *Basic response*<sup>14</sup> mode and *Full response*<sup>15</sup> mode. Response actions and the urgency of the response may vary according to the actual or perceived magnitude and potential consequences of an event.

### 2.2.1. Exchange of information

States Parties to the Early Notification Convention [1] are **obliged**, in an emergency involving facilities or activities<sup>16</sup> from which a release of radioactive material occurred or is likely to occur and which has resulted or may result in an international transboundary release that could be of radiological safety significance for another State<sup>17</sup>, to send notification of an emergency immediately<sup>18</sup> to other States that may be affected, either directly to those States or through the IAEA.

Article 3 of the Early Notification Convention states: “With a view to minimizing the radiological consequences, States Parties may notify in the event of nuclear accidents other than those specified in article 1”. Hence, in accordance with article 3, States Parties may voluntarily notify about **any type of nuclear emergency** with a view to minimizing its radiological consequences.

Additionally, in the event of a transnational emergency, States Parties are **expected, on a voluntary basis**, to send a notification promptly to the IAEA, in order to meet the requirements of GSR Part 7 [6].

Similarly, other States that are not Parties to the Early Notification Convention are **strongly encouraged** to send advisory messages about events to other States that may be affected, either directly or through the IAEA.

<sup>13</sup> In *Normal/Ready* mode, the IEC’s operational area is not staffed continuously, but on-call officers are available, 24 hours per day, 7 days per week, to immediately respond to incoming messages. This mode includes all of the IEC’s day to day activities that ensure readiness; it is the default condition under which the IEC operates. The *Normal/Ready* mode is maintained while an incoming message that describes a situation with apparent, actual, potential or perceived radiological consequences is being confirmed. Assistance missions may then be deployed in response to a request for assistance.

<sup>14</sup> In *Basic response* mode, once again, the IEC is not staffed continuously, but on-call officers are immediately available to respond to incoming messages (e.g. the IEC staffed during the day 12/7, the on-call officers ready to respond during the night 12/7). In this mode, extra assessments are made during office hours by IEC staff. Additional staff may have been activated or placed on standby, and preparations may be underway to move rapidly to *Full response* mode. Assistance missions may now be deployed in response to a request for assistance.

<sup>15</sup> In *Full response* mode, the IEC is staffed continuously — 24 hours per day, with shift changes of personnel — and actively manages the IAEA’s response actions.

<sup>16</sup> As per article 2 of the Early Notification Convention, these facilities and activities are: any nuclear reactor wherever located; any nuclear fuel cycle facility; any radioactive waste management facility; the transport and storage of nuclear fuels or radioactive wastes; the manufacture, use, storage, disposal and transport of radioisotopes for agricultural, industrial, medical and related scientific and research purposes; and the use of radioisotopes for power generation in space objects [1].

<sup>17</sup> See article 1 of the Early Notification Convention [1].

<sup>18</sup> The term “forthwith” is used in article 2 and article 4 of the Early Notification Convention [1].

All States are **encouraged** to inform the IAEA of any kinds of an actual, potential or perceived nuclear or radiological events, especially when they may attract or have attracted wide media attention or caused public concerns.

For events, such as a General Emergency, at facilities close to a State's national borders (when emergency planning zones and emergency planning distances extend beyond national borders [6]), a notification is expected to be sent by the Accident State directly to the relevant neighbouring countries within 1 hour after the declaration of a nuclear or radiological emergency — at the same time that this declaration is being sent to the off-site authorities. A notification to the IAEA is expected to be sent within 2 hours after the declaration of a nuclear or radiological emergency. Even when facilities are located far from national borders, notifications to the relevant CAs are expected to be sent within 2 hours — either directly or through the IAEA — after the declaration of a nuclear or radiological emergency, or when changes of the emergency class occur (see appendix VI of Ref. [14]). The IEC expects to receive initial information from a CA(D).

The IEC receives information from its CPs on a wide range of events. For example, it receives information from INES National Officers on INES rated events and from CA(D)s or CA(A)s on events that have attracted the interest of the media. The IEC may follow up with the relevant CA(D) regarding information received from other CPs about an event in their country.

When a message is received at the IEC, the IEC authenticates the message and verifies the content with the CA of the State that issued it. If the information is confirmed, the IEC activates the relevant IES processes. The IEC informs its CPs, in line with the response procedures (see Section 4), and distributes the message through USIE. It does this no later than 2 hours after receiving the message, while aiming to achieve a much shorter response time.

If information is received in a language other than English, and if English translations are not readily available from the notifying/reporting State, the IEC produces an unofficial translation of the information to understand the situation. It makes this unofficial translation available to other relevant States and international organizations, but only with the consent of the State that provided the original information.

The notifying/reporting State needs to send follow-up information promptly (i.e. not later than 4 hours) after the notification of a nuclear or radiological emergency to the IAEA. For facilities close to national borders, it is expected that follow-up information is sent directly to neighbouring countries at the same time as it is made available to off-site authorities. The IEC rapidly screens this additional follow-up information from the notifying/reporting State. Depending on its urgency, the IEC informs its CPs, according to the response procedures (see Section 4), and distributes the message through USIE. Follow-up information needs to contain all the information necessary to enable States to take actions aimed at minimizing transboundary or transnational radiological consequences; this information ought to include the results of environmental radiation monitoring.

The relevant CPs of States or international organizations may request information about an ongoing event in another State or about an event of international concern. The IEC, after authenticating the request, forwards it to the CA(D) of the relevant State, which is expected to respond promptly to the IEC. The IEC rapidly screens the reply for

consistency, plausibility, legibility and comprehensibility and communicates the response to the requesting CP.

If there are reports in the media, inquiries from the media (via OPIC) or other unconfirmed accounts of a transnational emergency or an event of international concern, the IEC may contact the CA(D) of the relevant State for provision of information and/or verification. Once the situation, as reported, has been either confirmed or proven to be false, the IEC requests the CA(D) concerned to send relevant information to the IEC through one of its primary emergency communication channels (fax or email) on EMERCON SRF or to submit this form to USIE. This information will be used by the IEC, in cooperation with the IAEA's OPIC, to address media inquiries. For details, see Section 4.2.

### 2.2.2. Provision of assistance

In support of the implementation of the Assistance Convention, the IAEA has developed and maintains the **IAEA Response and Assistance Network (EPR-RANET)** [8].

In the event of an actual or perceived nuclear or radiological emergency, the relevant CA or the State's PM to the IAEA may request assistance. The IAEA facilitates the provision of the requested assistance through its RANET mechanisms.

RANET is a network for providing international assistance in a nuclear or radiological emergency, upon request from a State. States Parties to the Assistance Convention are obliged, within the limits of their capabilities and resources, to identify National Assistance Capabilities (NACs) that could be made available to assist another State. The IEC facilitates provision of the requested assistance by calling upon these NACs, which include a wide range of capabilities. To be able to provide assistance in an efficient and timely manner, the IAEA encourages Member States to register their NACs in RANET.

Assistance may also be requested by and provided to non-Member States within the scope of the IAEA's Board of Governors' decision, as detailed in GOV/2810 **Error! Reference source not found.**

Assistance during a nuclear or radiological emergency could be provided/offered via other existing international or bilateral mechanisms applicable for a State. Therefore, there is a need to coordinate the process of requesting/offering assistance at the national level. For details on requesting IAEA emergency assistance, see Section 4.5.

### 2.2.3. Assessment of consequences and prognosis of emergency progression

The IAEA **Action Plan on Nuclear Safety** [9] expanded IAEA's role<sup>19</sup> in responding to an emergency at an NPP. This requested the IAEA Secretariat to provide Member States, international organizations and the general public with timely, clear, factually correct, objective and easily understandable information during a nuclear emergency on its potential consequences, including the analysis of available information and the prognosis of possible scenarios based on evidence, scientific knowledge and the capabilities of Member States.

To fulfil this role, the IAEA has developed an assessment and prognosis process that is described in the companion publication to this manual, entitled **Operations**

<sup>19</sup> In September 2013, the IAEA General Conference, in resolution GC(57)/RES/9, clarified that the IAEA Secretariat's response role in this context would cover all nuclear and radiological emergencies.

**Manual for IAEA Assessment and Prognosis during a Nuclear or Radiological Emergency** (EPR–A&P 2019) [10]. This manual is supported by the IAEA’s IEC Assessment and Prognosis Tools website, which contains specialized tools and procedures and explains the technical details of the process.

**Note** that all USIE Users are automatically granted access to the IEC Assessment and Prognosis Tools website (<https://iec.iaea.org/iecat>).<sup>20</sup>

The IEC requests from the Accident State and other Member States technical information to conduct assessment and prognosis. In parallel, the IEC may contact Member States which have pre-identified advanced assessment capabilities registered in RANET with a request to perform an assessment of a situation based on the input data received from the Accident State and other Member States.

The results of the assessment and prognosis are discussed with the Accident State and are shared with CPs in a timely manner, via fax and USIE distribution channels, and are classified as being “For Authority use only”. At the same time, the IAEA produces easily understandable information in plain language for release to the media and the general public. For details on the assessment and prognosis process, see Section 4.4.

The IAEA email for matters concerned with assessment and prognosis is: [IEC-Assessment-Tools.Contact-Point@iaea.org](mailto:IEC-Assessment-Tools.Contact-Point@iaea.org)

#### 2.2.4. Provision of public information

The IAEA extracts and summarizes any unrestricted and authenticated information received from CPs in relevant States about the situation and posts it in the form of public statements on the IAEA’s public website and/or uses it to answer questions from the media. Prior to posting information on the IAEA’s public website and/or issuing information to the media in response to their requests, the Secretariat contacts each relevant State to obtain its consent and to coordinate their respective efforts.

The IAEA makes all reasonable efforts to coordinate the release of information with the notifying/reporting State, other relevant States and international organizations, with due regard to their respective areas of responsibility. The IAEA monitors the international media to identify inconsistencies in authoritative information and ascertain any rumours, and it requests clarification as appropriate from the relevant CA. Timely, clear, factually correct, objective, consistent and easily understandable information (including analysis of available official information, assessment of possible consequences and prognosis of possible emergency progression) may be issued on the IAEA’s public website and/or made available to the media. CPs are consulted to obtain clarity on the information provided, and they are requested to provide additional information as needed.

**Note:** When a State, through its INES National Officer, submits the Event Rating Form (ERF), it is published on USIE without authentication by the IAEA and, by default, is displayed on the publicly accessible NEWS web page ([www-news.iaea.org](http://www-news.iaea.org)). Thus, the State, through its designated INES National Officer, is responsible for the information conveyed to the public via the ERF. For details, see Section 4.3.

<sup>20</sup> On request, the IAEA can provide access to the IEC Assessment and Prognosis Tools website for non-USIE Users in relevant technical organizations in States.

### 2.2.5. Coordination of the inter-agency response

The objective of the coordinated emergency response of the participating international organizations, in the context of the JPLAN [7], is to provide an appropriate and timely response to a nuclear or radiological emergency at the international level. Detailed practical arrangements are developed on a bilateral basis within the JPLAN between the IAEA and the participating international organizations.

To maximize the effectiveness of the inter-agency response, the participating international organizations coordinate their response arrangements and actions among themselves and with the relevant CA, making sure that there are clear lines of responsibility and authority in accordance with their respective mandates and obligations.

After confirming to the notifying/reporting State that the notification/report has been received, the IEC sends a notification/report to all relevant international organizations that have registered their CPs. During the Full Response mode of the IEC's activation, a designated liaison officer is available for any communication between the IAEA and the international organizations. The IEC may set up video/telephone conferences to exchange information and to coordinate common issues between the international organizations, such as the release of joint press statements. In addition, the IAEA has arrangements in place with the World Health Organization (WHO), the World Meteorological Organization (WMO) and the Food and Agriculture Organization of the United Nations (FAO) that allow these organizations, in response to emergencies, to send their liaison officers to the IEC to speed up the coordination process.

The framework for inter-agency response coordination is described in EPR-JPLAN [7].

### 2.2.6. Termination and follow-up actions

A State may send to the IEC information on the termination of a nuclear or radiological emergency<sup>21</sup> and the subsequent transition to an existing or planned exposure situation, if applicable, using the General Emergency at Nuclear Facility Form (EMERCON GENF) or the Standard Report Form (EMERCON SRF). This decision needs to be taken at the national level and needs to consider both radiological and non-radiological consequences, as required in paras 5.97 and 5.98 of GSR Part 7 [6]. The IEC announces the termination of a response based on a State's termination announcement. A termination announcement by the IEC is issued when the emergency situation is contained, is stable and does not present any further immediate risk to persons and the environment, or when the IEC does not anticipate any further **urgent** requests for advice or assistance.

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<sup>21</sup> The following Safety Guide may also be applicable to the termination of an emergency/event: FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, INTERNATIONAL ATOMIC ENERGY AGENCY, INTERNATIONAL CIVIL AVIATION ORGANIZATION, INTERNATIONAL LABOUR OFFICE, INTERNATIONAL MARITIME ORGANIZATION, INTERNATIONAL CRIMINAL POLICE ORGANIZATION, OECD NUCLEAR ENERGY AGENCY, UNITED NATIONS OFFICE FOR THE COORDINATION OF HUMANITARIAN AFFAIRS, WORLD HEALTH ORGANIZATION, WORLD METEOROLOGICAL ORGANIZATION, Arrangements for the Termination of a Nuclear or Radiological Emergency, IAEA Safety Standards Series No. GSG-11, IAEA, Vienna (2018).

If a State wishes to share information about follow-up actions and/or relevant implementation plans, this also may be shared through the established communication channels with the parties concerned.

**2.2.7. Suggested response time objectives**

Table 1 gives suggested response times for the key response actions described in Section 4.6 of this manual. This table complements the information found in Appendix VI of GS-G-2.1 [16]. States may use this table as a basis for establishing the response time objectives in their response procedures. The IAEA’s IES response procedures are developed on the expectation that the States implement the suggested response time objectives.

TABLE 1. SUGGESTED RESPONSE TIMES FOR THE KEY RESPONSE ACTIONS\*

<b>SUGGESTED RESPONSE TIME OBJECTIVES</b>		
	<b>For the CPs</b>	<b>For the IAEA</b>
<b>Notification to the IAEA</b>	Sent to the IEC within 2 hours** after receiving the information on a General Emergency.	Acknowledges receipt of the notification to the CP within 15 minutes after receiving it.
	Calls the IEC if notification is not acknowledged within 30 minutes after sending the notification.	Authenticates and verifies the content within 30 minutes after receiving the notification.  Informs all States within 2 hours after receiving the notification.
<b>Further information exchange</b>	Sent to the IEC within 2 hours after sending the notification to the IAEA.	Verifies the information and informs all States within 1 hour after receiving further information.
<b>Assessment and prognosis</b>	Within 2 hours after sending the notification to the IAEA, respond to possible questions from the IAEA related to the assessment and prognosis.	As applicable, formulates questions related to the assessment and prognosis within 2 hours after receiving the notification.
	Within 1 hour after receiving questions from the IAEA related to the assessment and prognosis, respond to those questions.	As applicable, formulates questions related to the assessment and prognosis within 1 hour after receiving further information.
<b>Provision of advice or assistance</b>	Assisting States respond to the request for assistance within 6 hours after receiving the request from the IAEA.	Deploys assistance assets within 48 hours after receiving the request.
<b>Provision of public information</b>	Within 2 hours after declaration of a General Emergency, prepares a press statement.	Prepares a press statement within 2 hours after receiving the notification message.
<b>Inter-agency coordination</b>		Activates the JPLAN within 4 hours after receiving the notification message.



SUGGESTED RESPONSE TIME OBJECTIVES	
	For the IAEA
Termination of emergency	Announced to the IEC within several weeks after the prerequisites for termination of the emergency have been fulfilled.
	For the CPs
	Declares the termination on USIE within the working day after receiving the confirmation of the termination of the emergency.

\* See Section 4.6 for additional details.

\*\* The CA(D) is encouraged to send the notification to the neighbouring countries, immediately after receiving it from the operator.

### 2.2.8. Use of provided information

The IAEA makes all reasonable efforts to keep States and relevant international organizations informed during a nuclear or radiological emergency. In order to facilitate the information exchange between States and international organizations and to enable them to further communicate with the public based on official information shared between CPs on USIE, three options to categorize the use of the provided information exist. CPs need to choose one specific option, as available in the emergency communication forms (see Section 3.3.4), to indicate how the provided information may be used, when posting information on USIE. These three options are:

- “For IAEA Secretariat use only” — the information is provided to the IAEA Secretariat. The information may not be shared with other CPs or with the public. Upon receiving such a message, the IEC will assess the information to determine potential implications to other States. The IEC will consult with the relevant CP to determine further actions, as appropriate and in accordance with the relevant procedures.
- “For Authority use only” — the information, as submitted, is provided to the IAEA Secretariat and the CPs for official use only, not for public disclosure; that is, the IAEA Secretariat and the CPs do not disclose the information, as submitted, to third parties. However, the IAEA Secretariat and the CPs may extract information from emergency communications forms to prepare, for example, information for their public websites, a press release or a brief note for public use, taking into account the need to protect sensitive information and to clearly explain technical information. CPs within the same country need to coordinate with each other to provide consistent information to the public, as per Requirement 13 of GSR Part 7 [6].
- “Free for public use” — the information is provided without restriction on its use as it is presented on USIE. The IAEA Secretariat and the CPs may share this information also with members of the public.

If a CP decides to request the change of the status of a message or messages published on USIE by another CP (or other CPs), from “For Authority use only” to “Free for public use”, a request needs to be sent by email to the IEC routine email [iec-routine@iaea.org](mailto:iec-routine@iaea.org). The IEC will ask the CP of the Member State which initially submitted the message(s) (or the CPs of all Member States that contributed to the information exchange concerning the event in question) to approve such a request. With

the approval of the Member State's CP which originally submitted the message(s) (or the CPs of all Member States which contributed to the information exchange concerning the respective event), the IEC will change the status of the message or messages on USIE. This would allow the requesting CP to use the information contained in the message(s) without restriction, as described above.

## 3. IAEA CONTACT POINTS

### 3.1. Designation of IAEA CPs

#### 3.1.1. Designations by States and international organizations

**States, IAEA Member States and international organizations Parties to the Conventions**

States, IAEA Member States and international organizations Parties to the Early Notification Convention and to the Assistance Convention **must** designate and make known to the IAEA their respective NWP and CAs (referred to as CAs and CPs in the Early Notification Convention and the Assistance Convention).<sup>22</sup>

**IAEA Member States and international organizations NOT Parties to the Conventions**

The IAEA Secretariat strongly encourages all other IAEA Member States to designate their particular NWP and CAs and make them known to the IAEA in order to meet the requirements stipulated in GSR Part 7 [6].

The IAEA Secretariat also strongly encourages all relevant international organizations to designate their CPs and to make them known to the IAEA. International organizations that are not yet co-sponsors of the JPLAN and that wish to be considered relevant for the purposes of the Early Notification Convention and the Assistance Convention may address the IAEA making such a request.

**Non-IAEA Member States**

The IAEA Secretariat also strongly encourages all non-Member States of the IAEA to designate their respective NWP and CAs and to make them known to the IAEA.

**INES National Officers and IRMIS Data Providers**

States may designate INES National Officers<sup>23</sup> and IRMIS Data Providers and send their contact details to the IAEA.

The functions of IAEA CPs and USIE Users are described in Section 3.2.

#### 3.1.2. Designation of IAEA CPs

Each State, through either its **Ministry of Foreign Affairs or the State's PM to the IAEA**, makes known in a written communication to the IAEA the designation of its NWP, its CAs and its INES National Officers, as applicable. The form for the designation of the NWP and the CAs, as well as for the provision of their contact

<sup>22</sup> Other conventions under the auspices of the IAEA also request that Parties designate their central authorities or points of contact. For example, such entities may have a role to play in a nuclear or radiological emergency triggered by a nuclear security event. This applies, for example, to the States that are Parties to the CPPNM (see Art. 5, para. 1 [4]) and are not Parties to the A/CPPNM.

<sup>23</sup> The General Conference (GC(56)/RES/9, 2012) urged Member States to designate an INES National Officer.

details, is available on the USIE website and, upon request, from the IAEA Secretariat. The CAs also designate the IRMIS Data Providers.

Within a State, all the CPs need to communicate their contact details among each other and share them with other relevant bodies.

Similarly, relevant international organizations make known in a written communication to the IAEA their contact details for emergency communications. The form for the provision of the contact details is available on the USIE website and, upon request, from the IAEA Secretariat. The relevant international organization sends the completed form to the IAEA.

A State makes changes to the designation of its NWP and CAs by completing the form and sending it through the official channels to the IAEA, in advance of the date of change. Changes to the designation of IRMIS Data Providers also need to be communicated in advance of the date of change through the same official channels.

### 3.1.3. Update of contact details

When NWP and CAs need to change the contact details of their authority, this can be done by the USIE Administrator of the NWP or CA on the USIE website. NWP and CAs can also send the changes to the routine email address of the IEC. The IEC implements the changes, and a confirmation email message is sent to the USIE Administrator of the relevant organization.

If the contact details of the NWP or CAs are changed, these changes need to be communicated to all other relevant bodies in the State in advance of the date of change.

The USIE Address Book, containing lists of all IAEA CPs, is available to all users on the USIE website and can be downloaded in PDF format.

Each State can communicate with other States using the contact details available on USIE. States are encouraged to use USIE for bilateral, multilateral and/or regional communications.

## 3.2. Expected functions of IAEA CPs

Depending on the specific national emergency systems in place in States, the functions of the NWP and CAs under the terms of both the Early Notification Convention and the Assistance Convention may be combined and performed by one or more institutions in a State. Unless otherwise informed, the IAEA assumes that the CAs nominated under the Early Notification Convention and the Assistance Convention have the same authority for issuing notifications/reports and for providing information concerning transnational or transboundary emergencies, as specified in GSR Part 7 [6].

### NWP

#### 3.2.1. National Warning Point — NWP

The NWP is designated by the Government of a State. The NWP role in a nuclear or radiological emergency is assigned to a **single** institution in a State that is authorized by its Government to receive a notification/initial advisory/follow-up message, a request for/offer of assistance and a request for information or verification and to act upon it **immediately**, on a 24/7 basis. The NWP's functions are independent of those of the CA. Nevertheless, a CA could also have the functions of an NWP, i.e. they may be a single entity.

The NWP is expected to be part of a national emergency response system and possesses both the authority and the means to activate the system. The NWP, under the terms of the Early Notification Convention and the Assistance Convention, has to be available continuously. It must be staffed and able to be alerted 24 hours per day, 7 days per week. Additionally, requirements regarding their functions and availability are described in GSR Part 7 [6].

The NWP is able to rapidly forward to the relevant CA any received notification/initial advisory/follow up message, request for/offer of assistance and request for information or verification from another State or the IAEA. The NWP has staff on duty who understand and speak English, or there must be speedy access to such staff. The NWP has the capability, and is available, at all times to receive fax messages and to establish direct telephone communications with the IEC. The NWP also has Internet capability for sending and receiving electronic mail, and it registers its staff as Liaison Officers on the USIE website for accessing and acknowledging receipt of posted messages. The NWP registers its USIE Users and at least one staff member as a USIE Administrator.

**CA(D)****3.2.2. Competent Authority for a Domestic Emergency — CA(D)**

The CA(D) is designated by the Government of a State. The CA(D) role in a nuclear or radiological emergency is assigned to one or more institutions within a State that are authorized by the Government to issue, as appropriate, a notification/initial advisory/follow-up message, a request for/offer of assistance and a request for information or verification, and to reply to a request for information or verification regarding a nuclear or radiological emergency originating at a facility or activity on the territory of, or under the jurisdiction of, the State. Each assigned CA(D) in a State is competent to verify relevant information provided during a nuclear or radiological emergency at a facility and activity under its authority. If the State designates only one CA(D), this CA(D) needs to be in a position to verify relevant information during a nuclear or radiological emergency at all facilities and during all activities on the territory of, or under the jurisdiction of, the State. If the CA(D) sends a request for assistance to the IAEA, the CA(D) coordinates this request with all other CAs in the State.

A State may designate more than one CA(D). Most importantly, all CA(D)s must be in an appropriate position within the State's national emergency response system to send or provide relevant authoritative information during a nuclear or radiological emergency. It is expected that the CA(D) has arrangements in place to receive relevant authoritative information during a nuclear or radiological emergency from the relevant authorities within the State. Examples include: relevant information regarding the cause of an event; information needed to conduct the IAEA's assessment and prognosis; information about patients after radiation overexposure; radioactivity concentration levels in food products after a contamination event; and information related to nuclear security.

Sensitive information related to a nuclear or radiological emergency may be reported, as appropriate, by the authorized staff of the CA(D) using the EMERCON SRF (specifically, its field for the provision of encrypted information) and the encryption feature of USIE. This encryption feature is available only to authorized USIE Users (Encrypted Information Readers/Editors/Publishers) of the CA(D).

The CA(D) does not normally need to be continuously staffed, but, in the case of a nuclear or radiological emergency, the relevant CA(D) is expected to be activated and to coordinate with other relevant organizations in the State. It has the capability and availability at all times to receive fax messages and to establish direct telephone

communications with the IEC. The CA(D) also has an Internet connection for sending and receiving electronic mail and for utilizing USIE. The CA(D) needs to register at least one staff member as USIE Administrator, who, in turn, registers staff as Publishers to publish messages on USIE. It is recommended that staff who are responsible for acknowledging USIE alert messages (the 'Liaison Officer' role) and who compose reporting forms (the 'Editor' role) are registered on USIE with their appropriate roles.

**CA(A)****3.2.3. Competent Authority for an Emergency Abroad — CA(A)**

The CA(A) is designated by the Government of a State. The CA(A) role is assigned to the **single** institution within a State that is authorized by its Government to receive a notification/initial advisory/follow-up message, a request for/offer of assistance and a request for information or verification and to issue follow-up messages, a request for/offer of assistance and a request for information or verification during a nuclear or radiological emergency originating in another State. If the CA(A) sends a request for assistance to the IAEA, it coordinates this request with all other CAs in the State.

Sensitive information related to a nuclear or radiological emergency may be received, as appropriate, by the authorized staff of the CA(A) using the EMERCON SRF (specifically, its field for provision of encrypted information) and the encryption feature of USIE. This encryption feature is available only to authorized USIE Users (Encrypted Information Readers/Editors/Publishers) of the CA(A).

The CA(A) does not normally need to be continuously staffed, but, in a nuclear or radiological emergency in another State, the CA(A) has arrangements in place so that it can activate rapidly and coordinate with other relevant organizations in the State after receiving notification from the NWP.

The CA(A) has the capability and availability at all times to receive fax messages and to establish direct telephone communications with the IEC. It has an internet connection for sending and receiving electronic mail and for utilizing USIE. The CA(A) needs to register at least one staff member as USIE Administrator, who, in turn, registers staff as Publishers to publish messages on USIE. It is recommended that staff who are responsible for acknowledging USIE alert messages (the 'Liaison Officer' role) and who compose reporting forms (the 'Editor' role) are registered on USIE with their appropriate roles.

**CAOC****3.2.4. Competent Authority for Other Conventions — CAOC**

In a nuclear or radiological emergency, there may be a need for an organization designated as a contact point under other relevant conventions [2]–[5] to send to the IAEA information relevant to the emergency for events within the scope<sup>24</sup> of these conventions. While these conventions do not necessarily specify the method by which a State would communicate with the IAEA in such cases, the Parties to these

<sup>24</sup> For events within the scope of the CPPNM and the A/CPPNM, the State Party to the CPPNM and A/CPPNM is responsible for informing as soon as possible other States which may be concerned of any theft, robbery or other unlawful taking of nuclear material or the credible threat thereof, and to inform, where appropriate, the IAEA and other relevant international organizations. It is also responsible for exchanging information with other States, the IAEA and other relevant international organizations with the view to protecting threatened nuclear material [4, 5]. The CPPNM and the A/CPPNM include provisions for States Parties to voluntarily exchange information with the IAEA and other relevant international organizations in the case of certain nuclear security events within the scope of the Convention and its Amendment. The A/CPPNM also envisages the exchange of information, in the case of sabotage of nuclear material or a nuclear facility in a State Party, or threat thereof, with other States and, where appropriate, the IAEA and other relevant international organizations [5].

instruments may choose to exchange information via the 24/7 secured emergency communication channel established through USIE. In this context, the IAEA has further enhanced USIE to enable encryption of information in transfer and storage, with due regard to the principle of protection of sensitive information, in order to facilitate the exchange of such information.

For this purpose, at the preparedness stage, States may decide to designate such organization(s) as Competent Authorities for Other Conventions (CAOC). If and as decided by the States Parties, the responsibilities related to exchanging relevant information in a nuclear or radiological emergency with States, the IAEA and other international organizations can be assigned to the CAOCs. The CAOC role may be delegated to one or more institutions within a State that have been authorized by the Government to implement this role.

In order to fulfil these responsibilities, the CAOC has the capability, and is available, to receive fax messages and to establish direct telephone communications with the IEC at all times. The CAOC also has Internet connections for sending and receiving electronic mail and for utilizing USIE. The CAOC needs to register at least one staff member as USIE Administrator. The USIE Administrator, in turn, registers staff as Publishers to publish messages on USIE. It is recommended that staff who are responsible for acknowledging USIE alert messages (the ‘Liaison Officer’ role) and who compose reporting forms (the ‘Editor’ role) are registered on USIE with their appropriate roles.

Relevant information is provided on a voluntary basis, as appropriate, by the CAOC through the EMERCON SRF, using the encrypted area that is only available to the authorized USIE Users. The CAOC may submit EMERCON forms in coordination with relevant CAs.

### **INES National Officers and their Alternates**

#### **3.2.5. INES National Officers**

INES National Officers are officially designated by their respective States. They ensure that — once a decision has been taken, on a voluntary basis, to rate an event on INES — the proper INES rating is performed in accordance with the INES methodology [13], and the event rating is posted on USIE<sup>25</sup> by using the Event Rating Form (ERF).

INES National Officers have Publisher and Administrator rights on USIE. They have read access to all information posted on USIE (except the encrypted information), and they have write access and Publisher rights only for the ERF. INES National Officers can manage national users affiliated with INES.

**Note:** When submitted by the INES National Officers, the ERFs are not verified by the IAEA and are available on USIE instantly. At the same time, the ERFs are posted on the NEWS website and become publicly available. ERFs published on the NEWS website do not contain the section with a justification of the INES rating, while ERFs published on USIE contain this section.

<sup>25</sup> States are encouraged to post events rated at Level 2 or higher, or events attracting international public interest [17].

**IRMIS Data Providers****3.2.6. IRMIS Data Providers**

All CAs designated under the Early Notification Convention and the Assistance Convention may report radiation monitoring data (routine and emergency) on IRMIS, according to the operational arrangements defined in this manual. Within the State, CAs assign the role of IRMIS Data Provider(s) to one or more technical organizations that operate fixed monitoring stations (such as radiation monitoring networks or posts for radiation monitoring) and/or have a role in collecting and reporting radiation monitoring data (from fixed stations and from mobile surveys, such as vehicle based and aerial based surveys) in normal situations and/or during an emergency. These organizations are authorized by the relevant CA or the State's PM to the IAEA to upload the radiation monitoring data (routine and emergency) on IRMIS.

IRMIS Data Providers establish a technical contact point that is responsible for the configuration and maintenance of the monitoring data, and they provide their contact details (email address) to the IAEA at [IRMIS.Contact-Point@iaea.org](mailto:IRMIS.Contact-Point@iaea.org).

Additionally, as required, IRMIS Data Providers need to develop conversion software for converting national (internal) data formats to the standard international format (IRIX), which is used in IRMIS. They also need to implement appropriate arrangements (such as IT arrangements) for making the data available on IRMIS.

All USIE Users, other than the IRMIS Data Providers, have read-only access to IRMIS. More detailed information on IRMIS is provided in EPR-IEComm 2019, Attachment 2 [18].

**3****Permanent Missions to the IAEA****3.2.7. Permanent Missions to the IAEA**

The State's PM to the IAEA receives copies of relevant communications sent from the IEC to its State's CPs, as appropriate. The PM also may, if it so chooses, have read-only access to the USIE website. All States' PMs to the IAEA are encouraged to register on and utilize USIE. It is highly desirable that the State's PM has an Internet connection so that it can send and receive electronic mail and have access the USIE website. The State's PM is requested to assist in the event of communication problems between the IEC and the State, and to assist if the State has not yet nominated a NWP or CAs. As part of providing assistance, the PM of a State requesting assistance may itself be requested to assist with matters such as obtaining visas for personnel entering the State and with customs clearance for equipment being brought into the State.

**International organizations****3.2.8. International organizations**

International organizations may have roles under the Early Notification Convention and the Assistance Convention. They may also have statutory and legally assigned functions related to the international exchange of relevant information, assistance or other aspects of emergency management. Such organizations are co-sponsors of the JPLAN and members of Inter-Agency Committee on Radiological and Nuclear Emergencies (IACRNE<sup>26</sup>). The framework for the coordination of the inter-agency response is provided in the JPLAN [7].

<sup>26</sup> Formerly the Inter-Agency Committee for the Co-ordinated Planning and Implementation of Response to Accidental Releases of Radioactive Substances, which was established following a meeting of representatives of the FAO, the International Labour Organization (ILO), the United Nations Environment Programme (UNEP), the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR), WHO, WMO and the IAEA at the Special Session of the IAEA General Conference in September 1986.

Arrangements are in place with all co-sponsors of the JPLAN to seek a harmonized approach with regard to preparedness and a coordinated inter-agency response to nuclear or radiological emergencies.

The CPs of relevant international organizations do not need to be continuously staffed, but, in the case of a nuclear or radiological emergency, the relevant international organizations have arrangements in place so that they can activate rapidly and coordinate with other relevant international organizations after receiving a notification from the IAEA. The relevant international organizations have the capability and availability at all times to receive fax messages and to establish direct telephone communications with the IEC. They also have an Internet connection for sending and receiving electronic mail and for utilizing USIE. Each of the relevant international organizations need to register at least one staff member as USIE Administrator, who, in turn, registers staff of this organization as Publishers to publish messages on USIE. It is recommended that staff who are responsible for acknowledging USIE alert messages (the ‘Liaison Officer’ role) and who compose reporting forms (the ‘Editor’ role) are registered on USIE with their appropriate roles.

**USIE Administrators**

**3.2.9. USIE Administrators**

CPs appoint USIE Administrators, who, as instructed by the management of their organizations, have the right to register and give USIE access to all users within their respective CP who use the same email domain. They can change the roles of the USIE Users within the CP as needed. USIE Administrators have the responsibility and the right to keep their organization’s contact details up to date, check the validity of registered USIE Users within their CP and keep other settings, such as alert channels on the USIE and USIE Exercise websites, up to date.

Table 2 provides a summary of IAEA CPs defined under IEComm and their key functions.

TABLE 2. KEY FUNCTIONS OF IAEA CPs AS DESCRIBED IN THIS MANUAL

IAEA CPs	Key Function
<p><b>IEC</b> IAEA Incident and Emergency Centre</p>	<p>The IEC is the IAEA’s focal point for preparedness for and response to a nuclear and radiological incident or emergency, irrespective of its origin. It is also the custodian of the IES.</p>
<p><b>NWP</b> National Warning Point</p>	<p>A single institution in a State that is designated by its Government and authorized to receive a notification/initial advisory/follow-up messages, a request for/offer of assistance and a request for information or verification. It is available 24/7 to act immediately upon receiving the message.</p>
<p><b>CA(D)</b> Competent Authority for a Domestic Emergency</p>	<p>One or more institutions within a State that are designated by their Governments and are authorized to issue, as appropriate, a notification/initial advisory/follow-up message, a request for/offer of assistance and request for information or verification; they are also authorized to reply to request for information or verification regarding a nuclear or radiological emergency originating at a facility or activity under the jurisdiction of that State.</p>

IAEA CPs	Key Function
<b>CA(A)</b> Competent Authority for an Emergency Abroad	A single institution within a State that is designated by its Government and is authorized to receive a notification/initial advisory/follow-up message, a request for/offer of assistance and a request for information or verification; it may also issue follow-up messages, a request for/offer of assistance and a request for information or verification regarding a nuclear or radiological emergency originating in another State.
<b>INES National Officers</b>	One or more specialists within a State who are designated by their respective Government and authorized to perform INES rating of an event in accordance with the INES methodology and to post the event rating on USIE by using the ERF.
<b>IRMIS Data Providers</b>	One or more technical organizations within a State that are authorized by the CA to report radiation monitoring data (routine and emergency) on IRMIS.
<b>State's PM to the IAEA</b> Permanent Mission of a State to the IAEA	The State's PM to the IAEA receives copies of relevant communications sent from the IEC to its State's CPs, as appropriate, and it may have read-only access to the USIE website. The State's PM is requested to assist in the event of communication problems between the IEC and the State and to assist if the State has not yet nominated an NWP or CAs. They also assist with matters such as obtaining visas for personnel entering their State, and with customs clearance for equipment being brought into the State as part of providing assistance, if requested.
<b>CPs in international organizations</b>	The officially designated CPs in international organizations within the framework of the JPLAN [7].

### 3.3. Communication with the IEC

#### 3.3.1. Validity of contact details

Promptly after receiving the names and contact details (or changes thereto) of the designated CAs, NWPs, INES National Officers and IRMIS Data Providers, as described in Section 3.1, the IEC:

- Ensures that the correct channels have been used for designating the NWPs, CAs, INES National Officers and IRMIS Data Providers. If not, the IEC submits the information received to the respective State's PM to the IAEA for appraisal and confirmation.
- Checks that the contact details for the NWPs, CAs, INES National Officers and IRMIS Data Providers are correct by performing a simple communications test on, or shortly after, the date of change.
- Adds the information received to its CP database, which is accessible through the USIE website.
- Makes available to all CPs the updated list of CPs as a downloadable electronic document on the USIE website.

The IEC requires that each USIE Administrator:

- Conducts checks of the contact details for NWP and CA(A)s twice a year through ConvEx-1 exercises.
- Conducts checks of the contact details of USIE Users once a year through respective USIE Administrators. In this regard, each USIE Administrator needs to answer by email to [USIE.Contact-Point@iaea.org](mailto:USIE.Contact-Point@iaea.org) the following questions:
  - Are you able to access USIE?<sup>27</sup>
  - Is the list of USIE Users within your organization up to date?
  - Are the relevant contact details in the USIE Address Book up to date?
  - Are the USIE alert channel settings of your organization on USIE up to date?<sup>28</sup>
  - Are the USIE alert channel settings of your organization on the USIE Exercise website up to date?<sup>29</sup>

The INES National Officers, as USIE Administrators, are expected to reply only to the first three questions.

The IEC contacts the relevant organization in case the USIE Administrator does not reply or does not completely answer the questions.

In case support is requested by USIE Administrators, the IEC provides the requested support.

### 3.3.2. Routine communications with the IEC

CAs, NWPs, INES National Officers, IRMIS Data Providers, the States' PMs to the IAEA, international organizations and others may wish to contact the IEC on matters concerning relevant conventions under the auspices of the IAEA, relevant safety standards, operational arrangements and emergency preparedness and response matters in general.

The IEC is ready to receive any **routine, non-urgent**, written or verbal communication from the CPs, through:



- **Routine fax number:** +43 1 2600 7 29309
- **Routine telephone numbers:** +43 1 2600 22054  
(or +43 1 2600 22706 and +43 1 2600 22028 as backups)
- **Routine email address:** [IEC-Routine@iaea.org](mailto:IEC-Routine@iaea.org)

<sup>27</sup> In case of forgotten IAEA NUCLEUS login credentials, help in recovering these credentials is available on the IAEA NUCLEUS website.

<sup>28</sup> This point is not applicable to USIE Administrators affiliated only with INES National Officers. It is recommended to enable as many alert channels as possible, including email, fax and the SMS function of mobile telephones.

<sup>29</sup> This point is not applicable to USIE Administrators affiliated only with INES National Officers. It is recommended to keep the same alert channels enabled as on the actual USIE site.

**Note: Do NOT use the routine communication channels in cases of nuclear or radiological emergencies.**

**Note: In cases of nuclear or radiological emergencies, use the arrangements described in EPR-IEComm 2019, Attachment 1.<sup>30</sup>**

### 3.3.3. Emergency communication channels

The following channels are available for emergency communication with the IAEA: emergency website (USIE), electronic mail, facsimile, telephone (landline and mobile) and video conference.

Electronic mail, facsimile and telephone represent both primary and routine emergency communication channels. The primary emergency communication channels are used for sending and receiving, as appropriate, a notification/initial advisory/follow-up message, request for/offer of assistance and request for information or verification, and for replying to a request for information or verification regarding a nuclear or radiological emergency. The primary emergency communication channels are monitored 24/7 by IAEA staff. The routine emergency communication channels are used for routine matters, such as invitations to and evaluations of emergency exercises and information on IEC events and IEC tools.

CPs can configure their primary emergency communication channels (i.e. electronic mail, facsimile and mobile telephones through their SMS function) as USIE alert channels. A message will be sent using the chosen USIE alert channels whenever an EMERCON message form has been published on USIE with a request for confirmation.

## 3

### Facsimile

Fax may be used for any type of information exchange between CPs and the IAEA (i.e. a notification/initial advisory/follow-up message, request for/offer of assistance and request for information or verification). Fax is a possible USIE alert channel for CPs. Fax is also the primary backup channel in the event of malfunction of the USIE website or the Internet in general. The emergency communication forms used for fax communication are described in Section 3.3.4.

### Emergency website — USIE

The IAEA offers a secure means for 24/7 exchange of emergency information through a protected website, **USIE** (<https://iec.iaea.org/usie>), which is continuously available as a primary channel for communication.

Information is primarily made available in English. Information received by the IEC is published on USIE, according to the response procedures (see Section 4), with due regard to the principle of protection of sensitive information.

In case of a need to transmit sensitive information, authorized USIE Users with specific user roles (i.e. Encrypted Information Editors/Publishers) can encrypt information within the 'Other Relevant Information' section of the EMERCON SRF, which remains encrypted during the information transfer and is shared only with authorized USIE Users who have the specific user roles (i.e. Encrypted Information Readers/Editors/Publishers). This information also remains encrypted while staying on the server (i.e. 'in storage'<sup>31</sup>).

<sup>30</sup> A printed version of Attachment 1 is available, upon request, to all designated CPs. The PDF version of Attachment 1 is available on USIE in the 'Documents' area.

<sup>31</sup> This information will also remain encrypted when the data of the server is backed up.

USIE can be accessed with a log-on ID and password obtained through the IAEA NUCLEUS website (<http://nucleus.iaea.org>).

USIE Users who can encrypt or read encrypted information have to use two factor authentication (2FA) for accessing USIE. The USIE website will guide those users through the process. Additional information on the process is available in the USIE 'Documents' area.

USIE Administrators can register USIE Users designated by the management of the respective CPs. If support in the registration of USIE Users is needed, a request should be sent by email to [USIE.Contact-Point@iaea.org](mailto:USIE.Contact-Point@iaea.org).

The IAEA offers a USIE Exercise website (<https://iec.iaea.org/usie/exercise>) for States' use in any national, regional and international nuclear or radiological exercises. All USIE Users have access to the USIE Exercise website, where they have the same user roles as on the USIE website.

There is also a USIE Training website, which can be used for training on USIE functionalities. USIE Users need to request access to the USIE Training website by sending an email to [USIE.Contact-Point@iaea.org](mailto:USIE.Contact-Point@iaea.org).

**Note:** USIE Users may assume the different roles described in the USIE manual, available on USIE in the USIE 'Documents' area.

### Telephone

The telephone is an optional channel for use by CPs for requesting information, verification of receipt or authentication.<sup>32</sup> The IEC uses the telephone to authenticate and to verify notification and/or initial advisory messages arriving at the IEC, and to establish a direct communication link with any NWPs, CAs and/or States' PMs to the IAEA. All telephone conversations made by and with the IEC on operational telephone channels are recorded. The SMS function of mobile telephones constitutes a possible USIE alert channel for CPs.

**Note:** The preferred language for communication with the IEC is English, and States are requested to use English for telephone communications whenever possible. The International Telecommunication Union Standard Phonetic Alphabet (see EPR-IEComm 2019, Attachment 1) should be used if there is a request to spell a name or word in English.

**The telephone may be used for the notification when other communications channels (fax or USIE) are not available.**

### Electronic mail

Email(s) with attachment(s) may be used for providing follow-up information after the initial contact with the IEC has been established. Email may also be used to request information from the IEC, to reply to request for information or for request for/offer of assistance. Email is also a possible USIE alert channel for CPs.

<sup>32</sup> The telephone may also be used as a contingency if other modes of communication fail when submitting notifications, advisory messages and/or follow-up messages.

**Do NOT use email as the emergency communication channel for the notification or initial advisory messages, for reporting a change of emergency class or for requesting assistance.**

**The IEC is asking the CPs to indicate whether they would prefer to be contacted by primary facsimile or primary email for notifications/initial advisory/follow-up messages, request for/offer of assistance and request for information or verification. If primary email is the preferred primary emergency communication channel, the CPs are asked whether a primary facsimile number should be kept as a primary backup emergency communication channel.**

### **Video conferencing**

Video conferencing, with involvement of two or more parties, can be used for various purposes during response actions and in exercises, after the counterparts have agreed on the objectives, time and applicable technical details. The IEC may set up a test connection to check the setup.

**Do NOT use video conferencing as the emergency communication channel for the notification or initial advisory messages, for reporting a change of emergency class or for requesting assistance.**

#### **3.3.4. Emergency communication forms**

The Emergency Communications forms (EMERCON forms) described below are available on USIE and need to be used by the CPs, as appropriate, for submitting a notification/initial advisory/follow-up message, request for/offer of assistance and request for information or verification in case of any actual, potential or perceived nuclear or radiological emergency. The “EMERCON” label on the forms was introduced and is used to make CPs aware of the importance and urgency of the messages.

The EMERCON forms provide the possibility to a CP to indicate if the information they contain is “Free for public use”, “For Authority use only” or “For IAEA Secretariat use only” (see Section 2.2.8).

The “Official Notification” section of both the General Emergency at a Nuclear Facility Form and the Standard Report Form (see below) is to be used to indicate whether the respective report is an official notification under articles 2 and 5 of the Early Notification Convention or if the report is provided on a purely voluntary basis (under article 3 of the Early Notification Convention or outside of the Convention).

By indicating “YES” in the USIE “Official Notification” section, the notifying CA confirms that, according to its view, the event is covered by article 1 of the Early Notification Convention and, therefore, triggers the obligation to notify in accordance with articles 2 and 5 of the Convention. By indicating “NO” in the same section, the notifying CA expresses the view that the event is not covered by article 1 of the Early Notification Convention and that, therefore, the notification and the information are provided on a purely voluntary basis.

### **EMERCON SRF**

**Standard Report Form (SRF)**, used for sending the initial information, follow-up information and information about the termination of any nuclear or radiological emergency, except for a General Emergency at a nuclear facility, for which the EMERCON GENF should be used. Planned or implemented precautionary urgent protective actions, urgent protective actions, early protective actions and other response actions during a nuclear or radiological emergency (on-site and off-site)

are to be communicated using the relevant sections of the SRF. In addition, sensitive information related to emergencies, including emergencies triggered by nuclear security events, can be included in the 'Other Relevant Information' section of the EMERCON SRF on USIE. This section of the EMERCON SRF can then be encrypted and made available only to a selected group of USIE Users.

**EMERCON GENF** **General Emergency at a Nuclear Facility Form (GENF)**, used for sending notification of a General Emergency at a nuclear facility. The form is also used for submitting further information and the declaration of the termination of the General Emergency.

As the EMERCON GENF does not provide the possibility of sending encrypted information, the 'Other Relevant Information' section of the EMERCON SRF needs to be used for providing sensitive information for the same event reported by using the EMERCON GENF. This section of the EMERCON SRF can be encrypted and made available only to a selected group of USIE Users.

**EMERCON RFA** **Request for Assistance Form (RFA)**, used to request emergency assistance under the Assistance Convention from or through the IAEA.

**EMERCON OFA** **Offer of Assistance Form (OFA)**, used to offer emergency assistance under the Assistance Convention.

**EMERCON RFI** **Request for Information Form (RFI)**, used to request verified official information from the IEC concerning an actual, potential or perceived nuclear or radiological emergency.

#### Other communication forms

**ENF** The **Event Notice Form** is not an EMERCON form. It is used to provide information about a terminated event which may be of interest to other States, the media or the public and for which no urgent response by the IAEA or other State is required. An ENF is available to all USIE Users at the moment it is submitted by a CP to USIE, without verification by the IAEA. The State submitting an ENF, through its designated CAs, is entirely responsible for the information contained in the ENF. **The ENF should NOT be used for ongoing events.**

**ERF** The **Event Rating Form** is not an EMERCON form. It is used by INES National Officers for communicating information about an event that is rated on the INES scale. An ERF includes the INES rating performed by the State. An ERF is published on USIE and NEWS simultaneously after submission by the INES National Officer(s) and without verification by the IAEA. The State, through its designated INES National Officer, is entirely responsible for the information contained in the ERF.

#### Short Message

##### Short Message on USIE

A new USIE feature allows a USIE Publisher who is affiliated to an organization that was nominated as CA(A) to publish a **Short Message** under an already published event. The Short Message allows CA(A)s, within the already published event and without submission of a new EMERCON GENF or EMERCON SRF, to publish information related only to the following categories: Meteorology, Measurements, Protective Actions, Public Information/Press Release and Technical Documentation. The Short Message function allows submitting text with a maximum of 2000 characters, adding URLs and attaching files. The Short Message

is not verified by the IAEA and becomes available under the event on USIE at the moment it is submitted by the CA(A).

### 3.3.5. Amendments and bulletins

The IEC envisages periodic revisions of the IEComm manual. It issues amendments to the current edition if such amendments become necessary. As needed, the IEC requires confirmation of receipt of the amendments by the CPs.

Additionally, the IEC endeavours to collect and disseminate to all Member States and Parties to the Conventions information<sup>33</sup> concerning:

- Experts, equipment and materials that could be made available in case of nuclear or radiological emergencies, by publishing information about RANET capabilities on USIE;
- Methodologies, techniques and the available results of research relating to response to nuclear or radiological emergencies, by elaborating and publishing EPR related safety standards and technical guidelines.

## 3.4. Preparedness of CPs

Instructions, in the national language, on the operational arrangements outlined in Section 4 of this manual and in Attachments 1 and 2 need to be prepared for staff of all CPs in a State. This needs to be coordinated among all the State's CPs.

It is important that the staff members of all CPs are regularly trained on the application of the relevant procedures; that, preferably, they understand and speak English; and that they are able to recognize an incoming EMERCON message and to take immediate and appropriate actions. Suitable equipment and communication capabilities need to be provided, including an accurate clock showing Coordinated Universal Time (UTC). Relevant EMERCON forms must be completed as much as possible in advance of their use (e.g. by inserting the geographical coordinates of nuclear facilities and other similarly predetermined information) and matched with national arrangements for issuing notifications and exchanging information.<sup>34</sup>

More information on developing emergency preparedness can be found in the following IAEA publications: GS-G-2.1 [14]; Method for Developing Arrangements for Response to a Nuclear or Radiological Emergency (EPR-METHOD 2003) [19]; and IAEA Safety Standards Series No. GSG-2, Criteria for Use in Preparedness and Response for a Nuclear or Radiological Emergency [20]. Information on the preparation for and performance of tasks related to INES and to IRMIS is provided in the INES User's Manual [13] and in Attachment 2 to this manual [18], respectively. Information on how to prepare for the IAEA assessment and prognosis process is available in the Operations Manual for IAEA Assessment and Prognosis during a Nuclear or Radiological Emergency [10], including how static technical parameters — such as reactor technical information (RTI) — can be shared via the Emergency Preparedness and Response Information Management System (EPRIMS).

<sup>33</sup> See article 5 of the Assistance Convention [1].

<sup>34</sup> Training should be provided on submitting information to the IAEA through USIE. EMERCON forms, as a contingency arrangement, and templates in hard copy should be available for submission by fax.

## 3.5. Exercises

Exercises are prepared, performed and evaluated by the IEC to test key response objectives and overall operational arrangements, as presented in the IECComm manual. The planned annual exercise schedule for the following year is made available at the end of the current year on the USIE website. The IEC sends invitations to participate in an exercise on a voluntary basis to the NWPs, CA(A)s and CPs in the international organizations via routine communication channels several weeks in advance. The results<sup>35</sup> and appropriate evaluations are made available on USIE after each exercise. By request<sup>36</sup> of a State participating in the exercise, detailed IEC comments regarding the actions taken by the respective State in the exercise are communicated to this State.

Exercises outside of the planned annual exercise schedule may also be called by the IEC to be conducted together with Member States and international organizations in order to test potential new arrangements.

Member States and international organizations that organize exercises by themselves are encouraged to use the USIE Exercise website, irrespective of whether or not they intend to involve the IEC in the exercise. If they ask for the IEC's involvement, the extent to which IEC is expected to be involved in the exercise needs to be communicated to the IEC in advance through the routine communication channels. If the IEC's involvement is not required by the organizers (i.e. no IEC's actions are required) and the first exercise message is published on the USIE Exercise website without prior announcement to the IEC during the normal IEC working hours, the IEC may still take the action of authenticating and verifying the exercise messages with the sender for training and awareness purposes. If the first message is submitted outside the normal IEC working hours, there will be no IEC response or action to such exercise.

All exercise messages **must** be clearly marked with the word 'EXERCISE' in English.

In addition to the exercises, the IEC prepares and performs a validation test of the alert channels of all USIE Users as described in Section 3.3.1.

The IAEA has developed a set of exercises of various levels of complexity — called ConvEx (Convention Exercise) — to practise with Member States and relevant international organizations different arrangements within the international emergency preparedness and response framework. ConvEx exercises are divided into three levels of complexity — ConvEx-1, ConvEx-2 and ConvEx-3.

### 3.5.1. ConvEx-1

**Objective: test that NWPs and CA(A)s are available within the expected time frames and that the primary emergency communication channels are accurate.**

#### ConvEx-1a

ConvEx-1a tests that NWPs are continuously available for receiving notifications and that CA(A)s are available for receiving notifications.

<sup>35</sup> For ConvEx-1, a statistical overview of the results of the exercise is provided. Each CP may request its detailed results from the IEC by email through [iec-routine@iaea.org](mailto:iec-routine@iaea.org)

<sup>36</sup> Requests for detailed IEC comments should be submitted through [iec-routine@iaea.org](mailto:iec-routine@iaea.org)

This type of exercise is conducted once a year. The IEC informs **all** NWP's and CA(A)s in advance that it plans to conduct a ConvEx-1a exercise within the next 14 days. It is expected that NWP's and CA(A)s activate their alert channels on the USIE Exercise website so that they can receive timely notifications via these channels. The exact date and time of this exercise are not announced; however, the month in which the exercise will be conducted is indicated in the annual exercise schedule published on the USIE website.

The IEC sends an exercise message by fax or email to all NWP's and CA(A)s. A corresponding exercise message is published on the USIE Exercise website, and USIE Exercise notifications are sent through the USIE Exercise alert channels to all NWP's and CA(A)s. It is expected that:

- NWP's acknowledge the exercise message on the USIE Exercise website or send an acknowledgement of receipt by fax or email to the IEC within 30 minutes.
- CA(A)s, no later than on their next working day, access the USIE Exercise website and acknowledge the exercise message on the site.
- CPs of States and international organizations which are not defined as NWP's and CA(A)s are encouraged to access the USIE Exercise website and acknowledge the exercise message on the site.<sup>37</sup>

### ConvEx-1b

**ConvEx-1b tests that NWP's are continuously available and that CA(A)s can promptly respond to notifications received.**

This type of exercise is conducted once a year. The IEC informs **all** NWP's and CA(A)s in advance that it plans to conduct a ConvEx-1b exercise within the next 14 days. It is expected that CPs activate their alert channels on the USIE Exercise website so that they can receive timely notifications via these channels. The exact date and time of this exercise are not announced; however, the month in which the exercise will be conducted is indicated in the annual exercise schedule published on the USIE website.

The IEC sends an exercise message by fax or email to all NWP's and CA(A)s. A corresponding exercise message is published on the USIE Exercise website, and USIE Exercise notifications are sent through the USIE Exercise alert channels. It is expected that:

- NWP's acknowledge the exercise message on the USIE Exercise website or send an acknowledgement of receipt by fax or email to the IEC within 30 minutes.
- NWP's promptly alert the relevant CA(A)s.
- As soon as possible, the relevant CA(A)s access the USIE Exercise website, read the message and acknowledge the exercise message on the site. The target time for acknowledgement of the message is 2 hours.

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<sup>37</sup> CPs that are not defined according to Section 3 of this manual are expected to respond like an NWP by acknowledging the message on the USIE Exercise website or by sending an acknowledgement of receipt to the IEC by fax or email within 30 minutes.

- CPs of States and international organizations that are not defined in accordance with this manual (see Section 3.2) are encouraged to access the USIE Exercise website and acknowledge the exercise message on the site.<sup>38</sup>

**ConvEx-1c**

**ConvEx-1c tests the IAEA's emergency communication channels.**

Any CP may send a test message by fax or email to the IEC without prior arrangement, not more frequently than once per quarter. The IEC returns a simple acknowledgement of receipt on or before the next working day. No other CPs are involved in this action.

**3.5.2. ConvEx-2**

**Objective: test that CAs can appropriately complete various reporting forms and to test the procedures for information exchange, provision of public information, requesting and providing assistance and assessment and prognosis.**

**ConvEx-2a**

**ConvEx-2a tests the abilities of CAs and INES National Officers to complete the appropriate reporting forms and the abilities of IRMIS Data Providers to upload monitoring data.**

This type of exercise is conducted once a year, on an announced date. Prior to the exercise, the IEC invites all CPs, INES National Officers and IRMIS Data Providers to participate. The IEC does not use the primary emergency communication channels for sending the exercise messages. In the registration process, the IEC therefore asks for the participants' communication details so that the IEC can send the exercise messages by fax or email to participating CPs.

On the day of the exercise, the IEC sends out the exercise messages at three different times of day: 04:00 UTC for Asia, the Pacific and Australia regions; 10:00 UTC for Europe and Africa regions; and at 16:00 UTC for North, Central and South America and the Caribbean regions. The message provides information in descriptive form about parts of a scenario. The exercise requires the CPs and the INES National Officers to complete the appropriate forms on the USIE Exercise website based on the exercise messages. The exercise also requires the IRMIS Data Providers to upload the monitoring data in IRMIS.

The role of the CPs is to:

- Complete the forms during their normal working hours;
- Submit the completed forms to the USIE Exercise website.

The role of the INES National Officers is to:

- Complete the ERFs during their normal working hours;
- Submit the completed forms to the USIE Exercise website.

The role of the IRMIS Data Providers is to:

- Upload the monitoring data in IRMIS during their normal working hours;
- Submit the uploaded data to the USIE Exercise website.

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<sup>38</sup> CPs that are not defined according to Section 3 of this manual are expected to respond like an NWP by acknowledging the message on the USIE Exercise website or by sending an acknowledgement of receipt to the IEC by fax or email within 30 minutes.

**ConvEx-2b**

**ConvEx-2b tests the arrangements for a request for assistance and the provision of assistance.**

This type of exercise is conducted once a year on an announced date. The IEC invites CAs to participate and to coordinate the participation of relevant national capabilities in the exercise. The exercise specifically addresses the CAs that have registered RANET capabilities but also promotes the participation of other CAs to encourage them to join RANET. This exercise is conducted over a maximum of three days. However, it is not run in real time, and all counterparts and the IEC may perform their exercise activities during their normal working hours. ConvEx-2b is conducted jointly with relevant international organizations.

The IEC invites the CAs to coordinate the communication of information and the requests for advice and assistance for a hypothetical situation in their State. The IEC provides input messages in advance if needed.

The IEC forwards messages from the Accident State to the participating CAs. It is expected that participating CAs review the information and decide whether they are in a position to offer the requested assistance, taking all technical and administrative capabilities and constraints into account. The completion of an Assistance Action Plan and associated documents, as per the EPR-RANET (2018) manual [8], are tested. The IEC and the participating CAs use appropriate means of communication to exchange information and to simulate the provision and coordination of international assistance to the Accident State.

**ConvEx-2c**

**ConvEx-2c tests the arrangements for responding to a transnational nuclear or radiological emergency.<sup>39</sup>**

This type of exercise<sup>40</sup> is conducted once every two to three years on a specified announced date and lasts no more than 8 hours (elapsed time). In advance of the exercise, the IEC invites all CAs to participate. This exercise is not conducted in the same year as the ConvEx-3 exercise.

The IEC invites the CAs to coordinate the communication of information and the requests for advice and assistance for a hypothetical situation in their State. The IEC provides input messages in advance if needed. The scope of the exercise, which is conducted on the USIE Exercise website, may include testing bilateral or multilateral arrangements.

The IEC forwards messages from the Accident State to participating CAs and publishes the information submitted on the USIE Exercise website. It is expected that participating CAs access information on the USIE Exercise website, confirm that they have read and understood messages, and respond appropriately to any requests for advice or information.

This exercise provides an opportunity to actively test the utilization of the encryption feature within the EMERCON SRF by the authorized staff of the CAs.

<sup>39</sup> The IEC is planning to alternate between scenarios involving a nuclear and a radiological emergency.

<sup>40</sup> This type of exercise includes scenarios of emergencies triggered by various origins. However, it excludes scenarios triggered by nuclear security events, which are now placed under the separate category of ConvEx-2d.

**ConvEx-2d****ConvEx-2d tests arrangements for responding to a nuclear or radiological emergency triggered by a nuclear security event.**

This exercise is conducted once every two to three years on a specified announced date and lasts no more than 8 hours (elapsed time). In advance of the exercise, the IEC invites all CAs to participate. The exercise is not conducted in the same year as the ConvEx-3 exercise.

The IEC invites the CAs from the Accident State to communicate messages for a hypothetical emergency triggered by a nuclear security event. The IEC provides input messages in advance if needed. The scope of the exercise, which is conducted on the USIE Exercise website, may include the testing bilateral or multilateral arrangements.

The IEC forwards messages from the Accident State to participating CAs and publishes the information submitted on the USIE Exercise website. It is expected that participating CAs access information on the USIE Exercise website, confirm that they have read and understood messages, and respond appropriately to any requests for advice or information.

**ConvEx-2e****ConvEx-2e tests the IAEA's assessment and prognosis process.**

This exercise is conducted at the discretion of CPs. Upon request and in advance, the IEC participates<sup>41</sup> in appropriate exercises (generally national level exercises) to practise and test the assessment and prognosis process.<sup>42</sup> The scope of the play is mutually agreed between the IEC and the participating State(s). It may include some or all of the following types of activities:

- The IEC reviews messages submitted on the USIE Exercise website for technical content, verifies the information and requests additional data needed for the IAEA assessment and prognosis.
- Based on information provided by the Accident State, the IEC generates an IAEA Status Summary report and/or a press release containing the output of the IAEA assessment and prognosis process.
- Member States support the development of IAEA assessment and prognosis through established mechanisms (e.g. RANET), if agreed and arranged in advance.
- The Accident State reviews IAEA the assessment and prognosis output and provides comments to the IEC, if any, within the expected timeframes.
- The IEC discusses the simulated release of a harmonized message with the Accident State and simulates its publication through relevant channels.

Interested Member States are encouraged to consider inviting the IEC to any appropriate exercise to become familiar with and practise the IAEA's assessment and prognosis process. Invitations can be made through the routine emergency communication channels.

<sup>41</sup> The IEC makes every effort to participate in invited exercises. However, due to limitations in staffing, or if the lead time provided is insufficient, the IEC may not be able to participate in all exercises to which it has been invited.

<sup>42</sup> Other activities outside of the IAEA's assessment and prognosis process can also be tested if requested.

**ConvEx-2f****ConvEx-2f tests the standard operating procedures of the IACRNE.**

The objective of this exercise is to test the IACRNE standard operating procedures (SOPs) and, in particular, SOP-104 regarding the public communication of international organizations, members of the IACRNE, during a nuclear or radiological emergency.

The IEC coordinates the preparation, conduct and evaluation of the exercise. The exercise is conducted once every two years on a specific date and lasts no more than 8 hours (elapsed time). The exercise is not conducted in the same year as the ConvEx-3 exercise.

In the exercise registration process, the IEC invites all organizations that are co-sponsors of the JPLAN to take part.

**ConvEx-2g<sup>43</sup>****ConvEx-2g tests the arrangements for public communication.**

The objective of this exercise is to test the arrangements of the CAs and the IAEA Secretariat for public communication during a nuclear or radiological emergency.

This exercise is conducted once a year on an announced date and lasts no more than 8 hours (elapsed time). Prior to the exercise, the IEC invites all CAs and their Public Information Officers (PIOs) to participate.

The IEC invites the CA of a Member State — the Accident State — to communicate messages for a hypothetical nuclear or radiological emergency in its State. The IEC forwards messages from the Accident State to participating CPs and publishes the information submitted on the USIE Exercise website.

The exercise requires the CAs and their PIOs to assess the public communication needs based on the specific scenario, carry out the appropriate public communication actions, address public concerns and media enquiries and coordinate actions, as necessary, with other States and/or the IAEA. In this exercise, press releases and social media messages have to be submitted on the USIE Exercise website. The INES National Officer(s) may observe the exercise to be aware of the emergency arrangements for public communication. It should be noted that the INES system is not a notification or reporting system and it should not be used in emergency response.

Public communication arrangements are also tested outside of the ConvEx-2g scenario as an integral part of other ConvEx exercises.

**3.5.3. ConvEx-3****Objective: test national and international emergency response arrangements for a severe nuclear or radiological emergency.**

ConvEx-3 exercises are large scale international exercises focusing mostly on response in a severe nuclear or radiological emergency regardless of its origin, involving a significant release of radioactive material into the environment, requiring off-site protective actions and having transnational and/or transboundary impact. The overall objective of these exercises is to allow States and relevant international organizations to evaluate their arrangements for response in a severe nuclear or radiological emergency.

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<sup>43</sup> In previous years, this type of exercise was performed as part of ConvEx-2c. This new exercise type has been introduced to test arrangements for public communication.

These exercises also evaluate the operational arrangements within the international EPR framework, e.g. the Operations Manual for Incident and Emergency Communication, IAEA Response and Assistance Network, JPLAN and assessment and prognosis arrangements. They offer opportunities for testing direct bilateral and multilateral communications between and among States and identify good practices and areas for improvement that can only be identified in international exercises.

The large scale exercise is conducted once every three to five years and is based on a national exercise that is conducted in a particular State. The IAEA Secretariat invites States to host the exercise and expects to receive offers at least 18 months in advance. Member States that have adopted the arrangements outlined in this manual are encouraged to volunteer as host for the ConvEx-3 exercise. Details are announced to States in advance. All States Parties to the Early Notification Convention and the Assistance Convention are strongly encouraged to participate. The exercise is coordinated with the exercise plans of other international organizations through the IACRNE. The scenario needs to simulate a nuclear or radiological emergency, regardless of its origin, involving a significant release of radioactive material into the environment, requiring off-site protective actions and having transnational and/or transboundary implications: 'actual' for a few States, 'potential' for some States and 'perceived' for many States.

States do not need to set up a specific exercise to host a ConvEx-3 exercise. However, they are encouraged to review their plans for conducting national exercises, and they may then decide to offer such a national exercise as the basis for a ConvEx-3 exercise. The host country is involved in the preparations of the international part of the exercise.

#### **Other exercises**

Additional exercises may be conducted whenever proposals for new arrangements are developed. To test the new functionality and to obtain some feedback from users, selected CPs or all CPs are invited to participate in such exercises.

#### **National or multinational exercises**

The IEC may participate in national, regional and multinational exercises at the request of the State or international organization conducting the exercise. The IEC can participate in such exercises in different ways: (1) by simply confirming the exercise messages; (2) by 'minimal play', meaning that all received messages are confirmed and verified if needed and are published on the USIE Exercise website; or (3) by 'normal play', in which the IEC actually sends a request for information to the country conducting the exercise, responds to incoming questions and, if requested to do so by a host country, distributes messages to other participating States/international organizations. The organizers of national exercises that are run on the USIE Exercise website may want to use the USIE features for direct notification of other States, or to send exercise messages to States on the basis of bilateral or multilateral agreements. Events on the USIE Exercise website can be published by a host State with access restrictions, which can be set to a single State, selected States or all States. Consequently, only those given access see the event and associated messages on the USIE Exercise website.

For the latter purpose, the IEC appreciates receiving a request for its participation at least two months before the planned date of the exercise. The IEC nominates a staff member as the IEC controller for the exercise. The IEC controller receives information on the exercise from the controller of the State conducting the exercise. The IEC keeps the received information restricted on a need-to-know basis, as requested by the State conducting the exercise.

Table 3 lists all the types of exercises defined in this manual, their purpose and their frequency.

TABLE 3. DESCRIPTION OF EXERCISES DEFINED IN IEComm

Exercise name	Purpose	Frequency
<b>ConvEx-1</b>	<b>To test that NWP and CA(A)s are available within the expected time frames and that the primary emergency communication channels are accurate</b>	
ConvEx-1a	To test that NWPs are continuously available for receiving notifications and that CA(A)s are available for receiving notifications	Once a year
ConvEx-1b	To test that NWPs are continuously available and that CA(A)s can promptly respond to notifications received	Once a year
ConvEx-1c	To test the IAEA's emergency communication channels	Once a quarter
<b>ConvEx-2</b>	<b>To test that CAs can appropriately complete various reporting forms and to test the procedures for information exchange, for provision of public information, for requesting and providing assistance and for assessment and prognosis</b>	
ConvEx-2a	To test the ability of CAs and INES National Officers to complete the appropriate reporting forms and the abilities of IRMIS Data Providers to upload monitoring data	Once a year
ConvEx-2b	To test the arrangements for a request for assistance and the provision of assistance	Once a year
ConvEx-2c	To test the arrangements for responding to a transnational nuclear or radiological emergency	Once every three years*
ConvEx-2d	To test the arrangements for responding to a nuclear or radiological emergency triggered by a nuclear security event	Once a year*
ConvEx-2e	To test the IAEA's assessment and prognosis process	By request from Member States
ConvEx-2f	To test the standard operating procedures of the IACRNE	Once every two years*
ConvEx-2g	To test the arrangements for public communication	Once every two years
<b>ConvEx-3</b>	<b>To test national/international emergency response arrangements for a severe nuclear or radiological emergency</b>	Once every three to five years
<b>Other exercises</b>	To obtain feedback on proposals for new arrangements	Whenever there are proposals for new arrangements
<b>National or multinational exercises</b>	To test the mechanisms for notification, reporting and information exchange as well as for requesting and providing assistance at the request of the State conducting the exercise	Upon request

\* Not conducted in the same year as ConvEx-3.

## 4. OPERATIONAL ARRANGEMENTS

### 4.1. Background

This section, together with Attachment 1 to this IEComm manual, provides the key information necessary for a State or international organization to understand the IEC's operations in a nuclear or radiological emergency in order to prepare its own detailed interfacing arrangements, including procedures, checklists and training. This manual does not in itself impose any obligations on States and relevant international organizations in this regard; however, it is highly recommended that States and international organizations develop compatible arrangements.

### 4.2. Event classification

Any nuclear or radiological emergency requires an effective response commensurate with the event and its actual, potential or perceived hazard to people, property and the environment. This can be accomplished by adopting an event classification system made up of a set of conditions that trigger a certain level of response.

The event classification system adopted for the purposes of this manual is in line with the emergency classifications outlined in GSR Part 7 [6] as well as in other operational publications [7][10]. It classifies all types of nuclear or radiological emergencies at facilities and during activities<sup>44</sup>, irrespective of their cause, that warrant a response.

Eleven sets of emergency conditions are used to describe various event types or situations that warrant response actions. The classification system adopted for the purposes of IEComm (Fig. 1) addresses the following: (1) nuclear emergencies (events specific to nuclear facilities); and (2) radiological emergencies (events not specific to nuclear facilities). All of these emergencies may be triggered by a nuclear security event, and, in such cases, additional response actions are warranted. The IAEA strongly encourages its Member States to build those additional response actions into their national emergency response arrangements.

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<sup>44</sup> Facilities and activities are a general term encompassing nuclear facilities, uses of all sources of ionizing radiation, all radioactive waste management activities, transport of radioactive material and other practice or circumstances in which people may be subject to exposure to radiation from naturally occurring or artificial sources [12].

This classification (for the purpose of IEComm) is used by the IEC to rapidly take appropriate response actions upon receipt of a notification or an initial advisory message.

The detailed definitions of these emergency classes and types, and the corresponding immediate response actions to be taken in the context of IEComm, are described in Section 4.6.

**Event Classification**

Irrespective of whether it arises from an accident, natural disaster, negligence or nuclear security event

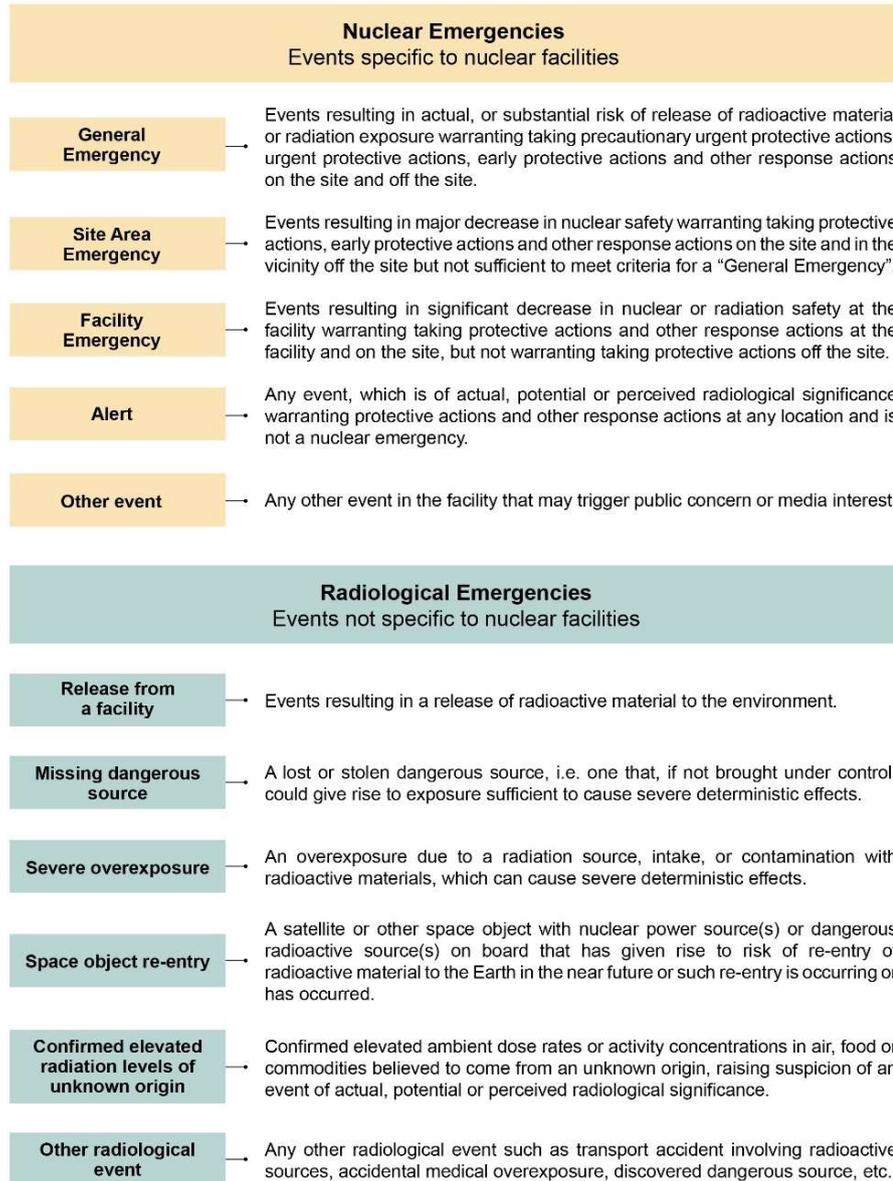


FIG. 1. Event classification — sets of emergency conditions or event types for the purposes of application of the arrangements described in IEComm.

#### 4.2.1. Obligations, expectations and encouragements

States and/or international organizations inform the IAEA about an actual or potential nuclear or radiological emergency either as the fulfilment of an explicit **obligation** to do so under international treaties [1]; as an **expectation** to do so on a **voluntary basis** to meet the requirements of international safety standards [6]; or on a **voluntary basis** in the spirit of transparency.

If an event could give rise to a transboundary emergency:

- States Parties to the Early Notification Convention **are obliged** to forthwith **notify** States which are or may be physically affected and the IAEA, promptly provide available information and respond to requests for information from affected States.
- States not party to the Early Notification Convention, in order to meet the requirements of GSR Part 7, **are expected**, on a voluntary basis, to send an **advisory message** to potentially affected States and the IAEA, provide relevant information and respond to requests for information.

If an event could give rise to a transnational emergency (as defined in GSR Part 7 [6]):

- All States, to meet the requirements of GSR Part 7, **are expected**, on a voluntary basis, to send an **advisory message** to potentially affected States and the IAEA, provide relevant information and respond to requests for information. **Note** that a General Emergency and a Space Object Re-entry (where the object has nuclear power source(s) or dangerous radioactive source(s) on board) are always transnational emergencies.

The IAEA expects to formally receive an initial message from a CA informing it about a nuclear or radiological emergency either through a **notification** or an **advisory message**.

If any of the events shown in Fig. 1 has given rise to local concern or may trigger/has triggered public concerns and/or wide media interest, the IAEA Secretariat **strongly encourages** States to **voluntarily** provide an **advisory message** to the IAEA.

#### 4.2.2. Nuclear emergencies (events specific to nuclear facilities<sup>45</sup>)<sup>46</sup>

For events specific to nuclear facilities, four classes<sup>47</sup> (**General Emergency, Site Area Emergency, Facility Emergency** and **Alert**) are used to initiate different levels of response (see Fig. 1). In addition, response actions for a group of events called **other event(s)** are given, because such events may have to be communicated due to the public

<sup>45</sup> This relates to emergency preparedness categories I and II as defined in GSR Part 7 [6], namely:

I – Facilities, such as nuclear power plants, for which on-site events (including very low probability events) are postulated that could give rise to severe deterministic health effects off the site, or for which such events have occurred in similar facilities.

II – Facilities, such as some types of research reactors, for which on-site events are postulated that could give rise to radiation doses to people off the site which warrant urgent protective action in accordance with international standards, or for which such events have occurred in similar facilities. Emergency preparedness category II (as opposed to emergency preparedness category I) does not include facilities for which on-site events (including very low probability events) are postulated that could give rise to severe deterministic health effects off the site, or for which such events have occurred in similar facilities.

<sup>46</sup> A nuclear powered vessel is considered a ‘nuclear facility’ for the purposes of IEComm.

<sup>47</sup> The four classes — **General Emergency, Site Area Emergency, Facility Emergency, Alert** — are specified in para. 5.14 of GSR Part 7 [6]. It is recognized that, at the national level, a State/operator may use other classes.

or media interest, or because relevant lessons can be learned by international community from response to them.

#### 4.2.3. Radiological emergencies (events not specific to nuclear facilities)

For events not specific to nuclear facilities, six types of emergencies are formulated here, namely: **Release from a facility**, **Missing dangerous source**, **Severe overexposure**, **Space object re-entry**, **Confirmed elevated radiation levels of unknown origin** and **Other radiological event** (see Fig. 1). For each type of event, specific response actions have been developed.

### 4.3. Overview of the IAEA specific activities and related resources

#### Notification and exchange of authenticated and verified information

The IAEA authenticates and verifies the notification or initial advisory message in English regarding a nuclear or radiological emergency and communicates it to CPs, as appropriate.

The subsequent follow-up messages in English, received from the notifying/reporting State or affected States, are also authenticated and verified. The IAEA communicates the follow-up messages to CPs, as appropriate.

#### Public communication

For public communication during an emergency, a section entitled 'Public communication' is provided on USIE forms EMERCON GENF and SRF, where States can provide the contact details of PIOs for media enquiries and links to any press releases. The USIE Address Book contains the contact details of the PIOs of States and international organizations in an electronic format that can be downloaded. States are encouraged to submit the contact details of their PIOs to facilitate direct contacts in an emergency between the relevant PIOs. Use of the Address Book is restricted to USIE Users (see Section 3.1).

For public communication purposes in an emergency, the IAEA performs media monitoring activities; conducts press conferences; shares information on its website by distributing background information and publishing press statements; and explains the role of the IAEA and its activities during the emergency. Public communication activities are also coordinated among the relevant international organizations within the framework of the JPLAN [7]. To ensure that information is accurate, prior to its release the IAEA verifies all information with the Accident State or the notifying/reporting State and/or the relevant affected State(s).<sup>48</sup>

Practical guidance on keeping the public and the media informed and on coordinating all sources of official information to ensure that consistent messages are provided to the public before, during and after a nuclear or radiological emergency is given in EPR–Public Communications 2012 [21].

<sup>48</sup> For an effective public communication activity in an emergency, public communication must be coordinated at the national level to avoid contradictory messages and misinformation among national organizations involved in the response. The response structure, including the roles and responsibilities of the different organizations involved, should be planned in advance and reflected in all organizational and national emergency response plans.

<b>Assessment and prognosis</b>	During a nuclear or radiological emergency, the IAEA also provides to all CPs the IAEA's assessment of potential consequences and a prognosis for the possible development of the emergency based on the available evidence, information, scientific knowledge and capabilities of Member States.
<b>Emergency assistance</b>	If requested, the IAEA assists in a wide range of areas. This can include, as appropriate, rapid deployment to the requesting State of qualified Secretariat personnel as well as external experts, utilizing the IAEA's RANET mechanism.
<b>Fact finding mission</b>	In a nuclear or radiological emergency, and upon request of the State requesting assistance, the IAEA may conduct fact finding missions in this State. The results of such missions are made publicly available with the consent of the requesting State and, if applicable, with the consent of the States, which may be involved in the fact finding mission.
<b>Coordination with relevant international organizations</b>	In addition to the IEComm arrangements and pursuant to the obligations placed on the IAEA by the Early Notification Convention and the Assistance Convention, the IAEA convenes the IACRNE meetings, whose purpose is to coordinate the response of the relevant international organizations to nuclear or radiological emergencies and to develop common preparedness and response arrangements.
<b>International Radiation Information Exchange Standard</b>	<p>The IEC utilizes the International Radiation Information Exchange (IRIX) data standard for the information exchange among States and international organizations during nuclear or radiological emergencies. The IRIX standard is designed to facilitate web based exchange of relevant emergency information and data among organizations that respond to nuclear and radiological emergencies. In particular, it is designed for the exchange of emergency information among CPs. The IRIX standard addresses both the content and the format (XML) of the data as well as the system interface specification.</p> <p>The IRIX data standard is currently in use in USIE and IRMIS as well as in the European Union's WebECURIE<sup>49</sup> and EURDEP<sup>50</sup> systems.</p> <p>The IRIX structure covers such information as the date, time and location of the event, the source or facility, details about radioactive releases, protective actions taken and/or planned in a country and radiological monitoring data. It includes information that is of immediate use to authorities in their decision making on protective actions for the public, but also provides more detailed information and data that can be used to improve the assessment of the emergency situation and subsequent decision making. The format supports the exchange of information that has been identified as being of key importance in the initial message (notification or advisory message) as well as in the follow-up information that States Parties are obliged to exchange (and that other States are expected to exchange).</p>

<sup>49</sup> The European Union web based Urgent Radiological Information Exchange (WebECURIE) system is the official notification system of the European Commission (EC) through which EU Member States are obliged to notify and exchange of information in the event of a nuclear or radiological emergency.

<sup>50</sup> The automatic European Radiological Data Exchange Platform (EURDEP) was developed to provide a platform for the continuous exchange of radiological monitoring data in a standardized way between the EC and the EU Member States. EURDEP is fully integrated in the WebECURIE procedures.

An XML schema for the IRIX Format is available at:

<http://nucleus.iaea.org/sites/iec/irix>

## Radiation monitoring data

The IAEA operates IRMIS<sup>51</sup> to assist States in meeting the requirements of the Early Notification Convention. IRMIS complements USIE when large quantities of radiation monitoring data need to be shared and visualized. IRMIS serves as a global platform for collecting and displaying real-time radiation monitoring data from fixed and mobile monitoring systems operated by States. IRMIS helps decision makers in deciding on and implementing protective actions and other response actions during a nuclear or radiological emergency.

IRMIS collects radiation monitoring data from IRMIS Data Providers using the IRIX standard. It stores the data safely in a database, allowing users to query the database, download the data or display them in various ways. IRMIS may also support the assessment of radiological hazards due to released radioactive materials, decisions on protective actions and the issuing of public communication in a developing situation.

All data reported in IRMIS remain the property of the notifying/reporting State.

It is important to emphasise that IRMIS is not designed to be used as a ‘global early warning system’.

Details and instructions for IRMIS Data Providers can be found in EPR-IEComm 2019, Attachment 2 [18].

## Meteorological products

In the event of a release of radioactive material to the atmosphere, the IAEA has arrangements with WMO for the production of a standard set of meteorological products.<sup>52</sup> These are developed on the basis of event site coordinates and, if available, information on the source term and the duration of release, as follows:

- Three dimensional trajectories of hypothetical packets of material, plotted separately for packets released at 500, 1500 and 3000 m above the ground. The locations of each packet at 6 hour intervals at the main synoptic hours (6h, 12h, 18h, 24h UTC) up to the end of the dispersion model forecast are also marked.
- Time integrated air concentrations within the layer of 500 m above the ground (in Bq • h/m<sup>3</sup>) for each of three forecast periods (i.e. 24, 48 and 72 hours).
- Total deposition (wet and dry, in Bq/m<sup>2</sup>) from the release time for each of the three forecast periods.

CPs are requested to set up links to their national meteorological service, which can provide interpretation of these meteorological products and help with the development of national arrangements for atmospheric dispersion calculations. A list of national

<sup>51</sup> The public has no access to IRMIS. A public version of IRMIS is planned for a later stage.

<sup>52</sup> WMO is developing specialized meteorological products showing ‘plume’ arrival times. These display contour lines of airborne concentrations for a single radioactive element, indicating the time, at 3 hour intervals, after the start of the release when such a projected airborne concentration will be present at a specific geographical point.

meteorological services can be found on the WMO website at:

[www.wmo.int/pages/prog/www/DPFSERA/delegated\\_authorities.htm](http://www.wmo.int/pages/prog/www/DPFSERA/delegated_authorities.htm)

The IAEA is posting on USIE meteorological products (including atmospheric dispersion modelling), as agreed with WMO<sup>53</sup>. Other meteorological products made available by CAs may be posted on USIE with the specification that they are not part of the IAEA–WMO set of agreed meteorological products, and that their content is at the discretion of the posting CA.

### **EPR Information Management System**

The EPR Information Management System (EPRIMS) is an interactive, web-based tool for Member States to share information on their EPR arrangements and capabilities for nuclear and radiological emergencies at the preparedness stage. In addition, EPRIMS contains a knowledge management database of static nuclear reactor technical information (RTI), including technical schematics, figures and photographs, which can be used during an emergency as part of its assessment and prognosis process and for communications with the public. EPRIMS is available to registered users.

The system allows States to input information about their EPR arrangements, perform a self-assessment of their status against the IAEA safety standards on EPR and, at their discretion, share information and knowledge with other Member States and the IAEA.

Member States are encouraged to upload the information about their EPR arrangements and capabilities on EPRIMS and to keep this information up to date.

### **Power Reactor Information System**

The IAEA maintains a comprehensive Power Reactor Information System (PRIS) focusing on nuclear power plants worldwide. PRIS ([prisweb.iaea.org](http://prisweb.iaea.org)) contains information, provided by Member States, on power reactors that are operational, under construction or being decommissioned. The database covers: reactor specification data (status, location, operator, owner, suppliers, milestone dates) and technical design characteristics; performance data, including energy production and energy loss data; and outage and operational event information. PRIS is available to both registered users and the public.

PRIS is used by the IEC for the assessment and prognosis process in the event of a nuclear or radiological emergency, as appropriate.

### **International Catalogue of Sealed Radioactive Sources and Devices**

The International Catalogue of Sealed Radioactive Sources and Devices (ICSRS) contains key manufacturing data for source and device models ([www.iaea.org/resources/databases/international-catalogue-of-sealed-radioactive-sources-and-devices](http://www.iaea.org/resources/databases/international-catalogue-of-sealed-radioactive-sources-and-devices)). ICSRS can help identify the model for an individual source or device and provide information on the manufacturer, application area and threat level associated with a source model. The information provided by ICSRS can therefore help in the safe handling of a given source or device. Note that it does not contain a list of actual physical sources or devices with their serial number, owner or location. ICSRS is available to registered users.

### **Information on teletherapy machines**

The Directory of Radiotherapy Centres (DIRAC) database ([www.iaea.org/resources/databases/dirac](http://www.iaea.org/resources/databases/dirac)) contains information related to available teletherapy machines, radioactive sources and devices used in brachytherapy at institutions around the world. Based on an assessment of the information in DIRAC

<sup>53</sup> Memorandum of Understanding between the International Atomic Energy Agency and the World Meteorological Organization, 2019.

during an emergency, the IAEA Secretariat may ask questions related to the status of identified dangerous radioactive sources or devices involved in or impacted by the emergency. DIRAC is available to registered users.

**Other database, sources or tools**

The IAEA develops and maintains other databases, sources and tools that could be available and used by the IEC during a nuclear or radiological emergency.

## 4.4. Assessment and prognosis

The assessment of the potential consequences and the prognosis of the likely development of the nuclear or radiological emergency are performed by the IAEA, based on all the available and credible technical information provided by the Accident State, utilizing all required IAEA resources. In parallel, the IEC may contact Member States with pre-identified advanced assessment capabilities (within RANET), provide them with the input data received from the Accident State and request them to use their capabilities to perform an assessment of the situation.

The assessment and prognosis process is carried out on the basis of the IAEA safety standards. To facilitate its assessment and prognosis process during the response, the IEC may use video teleconferences to prepare agreed content for the SSR with the Accident State other Member States involved in the process, if any. Representatives of the Accident State are always invited to participate in such discussions. Video teleconferences may also be used to discuss various matters, including open issues (if there are any) and the results of the assessment and prognosis with representatives of the Accident State.

If there are technical issues that cannot be resolved in the joint assessment, the ERM refers the issue to the IAEA's IES Steering Group for its decision on how to move forward.

The results of the assessment and prognosis may include summaries describing technical conclusions (featured in short SSRs on USIE), public statements (featured in a designated area on the IAEA's public website) and visual imagery appropriate for inclusion in presentations and/or video communications.

Once completed, the IAEA Secretariat shares the results of the technical assessment and prognosis with the Accident State to obtain its consent and to coordinate efforts. After consent has been obtained, the results are shared with the CPs, categorized as "For authority use only" (unless otherwise agreed), in a timely manner via email, fax and USIE distribution channels, as needed. The assessment of potential consequences and the prognosis of the likely development of the emergency continues until the situation is stable and does not present any further short-term risk to people and the environment; or until such time as the IEC does not anticipate any urgent requests for advice, assistance or need to offer its good offices; or as long as the event remains active on USIE.

It is expected that the Accident State:

- Is able to promptly provide needed technical information (if it is available);
- Provides comments on the IAEA assessment material (SSRs and/or public statements) in a prompt manner;
- Actively participates in technical discussions regarding any comments on the IAEA assessment material in order to resolve them.

**IEC actions**

After receiving a notification/advisory message of a nuclear or radiological emergency, the IEC:

- Communicates with the notifying/reporting CP, via telephone or email as applicable, to authenticate, verify and request any additional technical information needed for the assessment and prognosis process;
- Carries out its assessment and prognosis following the procedures defined in Ref. [10];
- Provides the output of its assessment and prognosis process to the Accident State for consideration and consent;
- Carries out discussions with the Accident State to clarify technical aspects included in the outputs of the assessment and prognosis process, as appropriate;
- Publishes the SSR on USIE, provides the relevant public statement on the IAEA website, and/or provides the relevant materials during a briefing at IAEA Headquarters in Vienna, if it is arranged;
- Actively continues the process as the emergency progresses.

## 4.5. Requesting IAEA emergency assistance

If a State needs assistance in the event of a nuclear or radiological emergency — irrespective of whether such an event originates on its territory or is under its jurisdiction or control — it may, in accordance with the Assistance Convention, request assistance from or through the IAEA.

The State's PM, or the relevant CA, is the Government representative that is expected to request assistance under the terms of the Assistance Convention. The requesting State is responsible for the overall direction, support and supervision of any assistance within its territory.

To facilitate the prompt and effective provision of assistance, it is expected that a State requests assistance through one of the following emergency communication channels, listed in the order of preference:

1. EMERCON RFA is submitted to USIE;
2. Fax to the IEC through the 24/7 emergency communication channel;
3. Telephone call to the IEC on the 24/7 telephone line.

The request for assistance needs to include the following information: the nature of the event, its location and the time of its occurrence in UTC and local time; the name and full address of the organization in charge of response actions; and the name and contact details of the person assigned to liaise with the IAEA [8].

The EMERCON RFA should state the type(s) of emergency assistance required, for example: radiation survey, sampling and analysis, source search and recovery, radiological assessment and advice, decontamination, medical support, dose assessment and others [8].

**Note:** To avoid unnecessary delays in providing assistance, a request for assistance should be sent directly to the IEC through the established emergency channels.

Upon receiving an official request for assistance, the IAEA, through the IEC, becomes the focal point for the facilitation and coordination of international assistance. The IEC assesses the request and provides initial advice to the requesting State.

The IEC may first deploy, upon request, a fact finding mission, whose aim is to: collect and assess information; perform an initial evaluation of the situation; provide immediate advice as needed; and recommend whether deployment of an IAEA Assistance Mission is necessary. Depending on the objectives and scope of the assistance mission, the exact nature and title of the mission is specified in the Assistance Action Plan (AAP), which is developed and agreed upon specifically for that mission. The IAEA Assistance Mission is tailored to the specific situation, e.g. it may include the deployment of RANET assets as well as provision of advice or assistance from an external base of RANET.

In addition, it is also expected that the requesting State:

- Approves, in writing, the AAP for the requested assistance proposed by the IEC, and promptly transmits such approval to the IEC;
- Provides, to the extent of its capabilities, local facilities and services for the proper and effective administration of the assistance;
- Ensures the protection and security of personnel, equipment and materials brought into its territory by, or on behalf of, the assistance for such purposes;
- Affords the necessary privileges and immunities for the performance of the assistance functions;
- Facilitates the entry into, stay in and departure from its national territory of personnel, equipment and property involved in the assistance;
- Facilitates the transit through its territory of duly notified personnel, equipment and property involved in the assistance.

After receiving a request for emergency assistance, the IEC:

- Communicates with the requesting CP, via telephone, to authenticate and verify the request received;
- Carries out a technical evaluation of the request received;
- Provides initial advice to the requesting State, as appropriate;
- Alerts the appropriate RANET CAs (through NWP, if necessary) and international organizations, if applicable;<sup>54</sup>
- Assesses the IAEA's own capability of providing the emergency assistance requested, and requests any appropriate RANET NACs to place their available resources on standby;
- Develops the AAP and associated documents for implementing the emergency assistance requested, in coordination with the requesting State, the assisting State(s) and/or relevant international organization(s). The AAP

<sup>54</sup> The CA/NAC Coordinators inform the IEC of the availability of their resources for assistance (by sending the EMERCON OFA) and, if required, the resources are placed on standby.

and associated documents should be agreed upon by all involved Parties, as applicable;

- Obtains deployment authorization from the relevant CA(A)s upon acceptance of the AAP by the State requesting emergency assistance;
- Facilitates and coordinates the emergency assistance.

Upon acceptance of the AAP by the requesting State, the IEC notifies the assisting States' CA/NAC Coordinators and involved international organizations, as appropriate, and requests activation of the NAC resources of the parties involved in the AAP.

## 4.6. Event specific response actions by CPs and the IAEA

This section describes the expected key **actions** that need to be performed by the relevant CPs and the IAEA for each of the event types outlined in Section 4.2.

Key response actions are grouped under:

- Notification/initial advisory message;
- Further information exchange;
- Assessment and prognosis;
- Provision of advice or assistance;
- Provision of public information;
- Inter-agency coordination;
- Additional response actions in case the emergency is triggered, or suspected of being triggered, by nuclear security events;
- Termination of the emergency.

When applicable, response time objectives are also given, as outlined in Section 2.2.

Emergency assistance may be requested for each of the event types by following the arrangements outlined in Section 4.5.

For each of the event types, the Accident State may send to the IAEA, as applicable, information on the termination of a nuclear or radiological emergency and the transition to an existing exposure situation or to a planned exposure situation.



## EVENTS SPECIFIC TO NUCLEAR FACILITIES

### Emergency Class: GENERAL EMERGENCY

<b>Description</b>	Events, regardless of their origin, which can lead to an actual or substantial risk of the release of radioactive material or radiation exposure, and which warrant taking precautionary urgent protective actions, urgent protective actions, early protective actions and other response actions on the site and off the site. This includes: actual or projected severe core damage; the potential for doses off the site warranting implementation of urgent protective actions; an event resulting in the inability to monitor or control the critical safety functions needed to protect the core of a nuclear reactor or large amounts of spent fuel; or criticality events that could expose people off the site.
<b>Purpose</b>	To notify and provide relevant information to the IAEA's Member States with the aim of minimizing the consequences of a transboundary or transnational emergency and, as appropriate, minimizing the transboundary radiological consequences of any release.
<b>Obligation</b>	If a release of radioactive material occurs or is likely to occur, and results or may result in a transboundary release, <b>States Parties</b> to the Early Notification Convention are <b>obliged to notify</b> by sending <b>notification</b> to potentially affected States and the IAEA, <b>provide relevant information</b> and <b>respond to requests for information</b> from affected States.
<b>Expectation</b>	All <b>Member States</b> , to meet the requirements in GSR Part 7 [6], are <b>expected, on a voluntary basis, to send an advisory message, provide relevant information and respond to requests for information</b> concerning a transboundary or transnational emergency related to a declared General Emergency <sup>55</sup> .  In accordance with article 3 of the Early Notification Convention, States Parties may voluntarily notify about any type of nuclear emergency with a view to minimizing its radiological consequences.
<b>Encouragement</b>	The IAEA <b>strongly encourages</b> States to notify a General Emergency in line with the response time objectives that are set out in Section 2.2 and described in appendix VI of Ref. [14].

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<sup>55</sup> General emergency at facilities in category I or II for an emergency that warrants taking precautionary urgent protective actions, urgent protective actions, and early protective actions and other response actions on the site and off the site. Upon declaration of this emergency class, appropriate actions shall promptly be taken, on the basis of the available information relating to the emergency, to mitigate the consequences of the emergency on the site and to protect people on the site and off the site [6].

**Notification or initial advisory message**

From notifying/reporting State

<b>GENERAL EMERGENCY</b>	
<b>ACTIONS BY CPs</b>	<b>ACTIONS BY THE IEC</b>
CA(D) sends notification/advisory message to the IEC’s primary emergency fax/email using EMERCON GENF, possibly with attachments and/or URL of its own website, or submits the notification using an EMERCON GENF to USIE.	Acknowledges the notification/advisory message on USIE.
<i>Response time objective:</i> within 2 hours <sup>56</sup> after receiving information on a General Emergency.	<i>Response time objective:</i> within 15 minutes after receiving the notification/advisory message.
CA(D) calls the IEC on its primary emergency telephone to confirm receipt of the notification/advisory message, if no acknowledgment from IEC has been received.	Calls the designated CA(D) of the notifying/reporting State on the primary emergency telephone to authenticate and verify the content of the notification/advisory message.
<i>Response time objective:</i> 30 minutes after the notification/advisory message was sent by CA(D).	<i>Response time objective:</i> within 30 minutes after receiving the EMERCON GENF.
	Offers the IAEA’s good offices to the notifying/reporting State.  Establishes 24/7 response mode (Full Response Mode), including dedicated telephone and email connections with the notifying/reporting State.  Publishes the notification/advisory message on USIE, including any attachments and/or links to the notifying/reporting State’s website. Sends an alert message via the USIE alert channels to the NWP’s and CA(A)s of States within 1000 km of a nuclear power plant, or within 50 km of a research reactor, requesting them to confirm receipt of the notification/advisory message on USIE.  Informs relevant international organizations.
<b>Note:</b> Receipt of an alert message requires the CP to activate the alert channels on USIE on the ‘Organizational Preferences’ tab in USIE/Settings, as described in the USIE User’s Manual [14].	
	Sends a copy of the notification/advisory message to all CPs by primary emergency fax/email.  <b>Note:</b> The primary emergency fax/email list contains the preferred primary emergency communication channel as indicated in the USIE Address Book for each CP.

<sup>56</sup> The CA(D) is encouraged to send the notification to the neighbouring countries immediately after receiving it from the operator.



<b>GENERAL EMERGENCY</b>	
<b>ACTIONS BY CPs</b>	<b>ACTIONS BY THE IEC</b>
	<p>Offers the IAEA’s good offices to potentially affected States.</p> <p>Contacts the NWP’s of States within 1000 km of a nuclear power plant, or within 50 km of a research reactor, that have not confirmed receipt of the notification/advisory message either on USIE or by message to the IEC’s primary emergency fax, email or telephone, and establishes a dedicated telephone contact with relevant CA(A)s.</p> <p>Establishes separate telephone liaison with CAs of other States or States’ PMs to the IAEA and relevant international organizations.</p>
<p><b>Further information exchange</b></p> <p>From notifying/reporting State</p> <p>CA(D) periodically sends further relevant information to IEC’s primary emergency fax/email on EMERCON GENF or EMERCON SRF or submits the forms to USIE, possibly with attachments and/or URL of its own emergency website.</p> <p>IRMIS Data Provider(s) upload the monitoring data in IRMIS, if applicable.</p> <p><b>Note:</b> If applicable, CA(A)/CA(D), through the Encrypted Information Publisher(s) designated in their organizations, submit encrypted information that may be relevant for other States on EMERCON SRF to USIE.</p> <p><i>Response time objective:</i> not later than 4 hours after notification/advisory message was sent.</p>	<p>Periodically distributes further information to all CPs’ primary emergency fax/email.</p> <p>Publishes follow-up information on USIE, including any attachments and/or URL of the notifying/reporting State’s website.</p>
<p>Meteorological products from notifying/reporting State</p> <p>CA(D) may generate national meteorological products or request these from WMO RSMC<sup>57</sup>; CA(D) sends the results to the IEC’s primary emergency email or submits these as attachment on an EMERCON GENF to USIE.</p>	<p>Requests and receives meteorological products from relevant WMO RSMCs.</p> <p>Publishes meteorological products on USIE.</p>



<sup>57</sup> Regional Specialized Meteorological Centre: At present, there are eight RSMCs, which operate sophisticated atmospheric simulation models to provide information on actual and anticipated atmospheric transport, dispersion and deposition of airborne radioactivity. Their locations are: Exeter and Toulouse (for Europe and Africa); Washington, D.C., and Montreal (for North, Central and South America); Beijing, Obninsk and Tokyo (for Asia); and Melbourne (for South West Pacific) [7].

<b>GENERAL EMERGENCY</b>	
<b>ACTIONS BY CPs</b>	<b>ACTIONS BY THE IEC</b>
<p>Information from potentially affected States</p>	<p><i>State from which information is requested</i></p> <p>CA(A) sends relevant information and the URL of the national website on EMERCON SRF to the IEC’s primary emergency fax/ email or submits the form to USIE or sends the URL of the national emergency website providing the relevant information to the IEC’s primary emergency email.</p> <p>IRMIS Data Provider(s) upload(s) the monitoring data in IRMIS, if applicable.</p>
<p>Requests for information from other States</p>	<p><i>State requesting information</i></p> <p>The CA(A) or the State’s PM requests information via message to the IEC’s primary emergency fax, email or telephone, or submits an EMERCON RFI to USIE.</p>
	<p><i>State(s) from which information is requested</i></p> <p>The CA(D) of the notifying/reporting State, or the CA(A)s of other relevant States, sends replies to the IEC’s primary emergency fax/email or provides answers by telephone, or submits the requested information to USIE.</p>
<p><b>Assessment and prognosis</b></p>	<p>The notifying/reporting State sends relevant and available information to the IEC’s primary emergency fax/email or submits the information as an attachment to an EMERCON GENF to USIE for assessment and prognosis.</p> <p><b>Note:</b> If possible, this includes the results of State assessment and prognosis, and results from IAEA assessment tools application.</p>
	<p><b>Note:</b> If several States request the same type of information or if there is a need to counteract false rumours, the IEC sends a message to the CA(A)s’ primary emergency fax/email of all States or publishes the information on USIE.</p>
	<p>Reviews the information received.</p> <p>Establishes direct contact with the CA(D) to request additional information (if needed) via the primary emergency telephone.</p> <p>Establishes links to other States’ emergency websites on USIE.</p> <p>Contacts States registered in RANET on their primary emergency fax/email about the availability of their resources to provide support for the IAEA assessment and prognosis, as required.</p> <p>Acts as described in Section 4.4 of this manual.</p>

<b>GENERAL EMERGENCY</b>		
	<b>ACTIONS BY CPs</b>	<b>ACTIONS BY THE IEC</b>
<b>Provision of advice or assistance</b>	<p>CAs or the State’s PM may send a request for assistance to the IEC’s primary emergency fax or email using EMERCON RFA or submit the request to USIE (see Section 4.5 of this manual).</p>	<p>Acknowledges the request for assistance and verifies the content.</p> <p>Assesses the request and contacts the requesting State on its primary emergency telephone.</p> <p>Becomes the focal point for the facilitation and coordination of international assistance.</p> <p>Acts as described in Section 4.5 of this manual.</p>
Assistance Action Plan	<p style="text-align: center;"><i>Requesting and providing States</i></p> <hr style="border-top: 1px dashed black;"/> <p>Review and revise the AAP and associated documents, as applicable, and sign off on them.</p> <hr style="border-top: 1px dashed black;"/> <p style="text-align: center;"><i>Requesting State</i></p> <hr style="border-top: 1px dashed black;"/> <p>Supports the implementation of assistance.</p>	<p>Drafts an AAP and associated documents as described in EPR–RANET 2018 [8] and provides them for all involved CPs on their primary emergency fax/email.</p> <p>Facilitates and coordinates the implementation of assistance.</p>
<b>Provision of public information</b>	<p>CA(D) sends copies of any press releases or URLs of relevant public websites to the IEC’s primary emergency fax/email or submits them to USIE.</p> <p>INES National Officer(s) of the notifying State may submit INES ERF(s) to USIE in coordination with relevant CAs.<sup>58</sup></p>	<p><b>IAEA:</b> May publish public statement(s) on the IAEA’s public website.</p>
<b>Inter-agency coordination</b>	<p>CPs, in accordance with their mandates, may establish relevant links and communication channels with their Member States (including respective national focal points), other competent organizations or agencies, regional centres and programmes.</p> <p>May send any additional/specific information in relation to the emergency of which they may be aware.</p>	<p>Triggers the activation of the JPLAN and acts as the focal point for response coordination.</p>

<sup>58</sup> The ERF is submitted when relevant information about the event is available and according to the national plan of using INES for communication in emergencies. For more details, see Ref. [17].

<b>GENERAL EMERGENCY</b>		
	<b>ACTIONS BY CPs</b>	<b>ACTIONS BY THE IEC</b>
<p><b>Additional response actions</b> if the emergency is triggered, or suspected of being triggered, by nuclear security event(s)</p>	<p>CA(A)/CA(D) and/or CAOC may use the EMERCON SRF on USIE to share encrypted information, such as sensitive and/or nuclear security related information, that may be relevant to other States. (The text provided in the ‘Other Relevant Information’ section of the EMERCON SRF can be encrypted to allows confidential information to be shared.)</p>	<p>Authenticates and verifies the message and contacts CA(A)/CA(D) and/or CAOC.</p> <p>May establish liaison with EUROPOL, INTERPOL and/or other relevant international organizations as per JPLAN and its provisions.<sup>59</sup></p> <p>May inform relevant CPs on their primary emergency fax/email.</p>
<p><b>Termination of emergency</b></p>	<p>The CA(D) sends information about termination of the nuclear emergency and transition to an existing/planned exposure situation using the EMERCON GENF to the IEC’s primary emergency fax/email or submits the form to USIE.</p> <p>The CA(D) calls the IEC on its primary emergency telephone to confirm receipt of the message.</p>	<p>Publishes the information on USIE.</p> <p>Informs all CPs on their primary emergency fax/email about the termination of the emergency.</p>

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<sup>59</sup> Respecting the instructions from the notifying State with due regard to the principle of protection of sensitive information.

## Emergency Class: SITE AREA EMERGENCY

<b>Description</b>	Events, regardless of their origin, resulting in a major decrease in the level of protection for those on the site and in the vicinity of the site, but not sufficient to meet the criteria of a General Emergency. This includes: a major decrease in the level of protection provided to the core of a nuclear reactor or large amounts of spent fuel; conditions in which any additional failures could result in a General Emergency; doses off the site approaching the criteria for urgent protective actions (e.g. from a release of radioactive materials, direct exposure or a criticality); events with the potential to disrupt the performance of critical safety functions or result in a severe release of radioactive material.
<b>Purpose</b>	To provide relevant information with the aim of bringing IAEA Member States and other States to an enhanced state of readiness, in anticipation of the possibility that the situation may worsen, and rapid distribution of authenticated information may become necessary.
<b>Obligation</b>	There is <b>no obligation</b> on States Parties by virtue of the Early Notification Convention to notify the IAEA or other States of conditions representing a ‘Site Area Emergency’ <sup>60</sup> .
<b>Expectation</b>	All <b>Member States</b> , to meet the requirements in GSR Part 7 [6], are <b>expected, on a voluntary basis, to send an advisory message</b> to the IAEA regarding a ‘Site Area Emergency’ in order: (1) to pre-empt legitimate requests for information from other States; <sup>61</sup> (2) to prompt the IAEA to offer its good offices; <sup>62</sup> (3) to provide advance warning to the IAEA, other relevant organizations or other States of a developing situation so that they can be ready to respond should the situation worsen; and (4) for international organizations or States, to provide advice to their Governments, the public or the media about a developing situation of actual, potential or perceived radiological significance.  In accordance with article 3 of the Early Notification Convention, States Parties may voluntarily notify about any type of nuclear emergency with a view to minimizing its radiological consequences.
<b>Encouragement</b>	The IAEA <b>strongly encourages</b> States to inform the IAEA of a ‘Site Area Emergency’ so that it can be ready to carry out its functions under article 4 of the Early Notification Convention [1].

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<sup>60</sup> Site area emergency at facilities in category I or II for an emergency that warrants taking protective actions and other response actions on the site and in the vicinity of the site. Upon declaration of this emergency class, actions shall promptly be taken: (i) to mitigate the consequences of the emergency on the site and to protect people on the site; (ii) to increase the readiness to take protective actions and other response actions off the site if this becomes necessary on the basis of observable conditions, reliable assessments and/or results of monitoring; and (iii) to conduct off-site monitoring, sampling and analysis [6].

<sup>61</sup> See article 2 of the Early Notification Convention [1].

<sup>62</sup> See article 5 of the Assistance Convention [1].

<b>SITE AREA EMERGENCY</b>	
<b>ACTIONS BY CPs</b>	<b>ACTIONS BY THE IEC</b>
<i>Response time objective: As suggested in Section 2.2.7.</i>	
<p><b>Notification or initial advisory message</b></p> <p>From reporting State</p> <p>The CA(D) sends an advisory message on EMERCON SRF to the IEC's primary emergency fax/email, possibly with attachments and/or URL of its own website or submits it to USIE.</p> <p>CA(D) calls the IEC on its primary emergency telephone to confirm receipt of the advisory message.</p> <p>IRMIS Data Provider(s) upload(s) the monitoring data in IRMIS, if applicable.</p>	<p>Acknowledges the advisory message on USIE.</p> <p>Calls the designated CA(D) of the reporting State on the primary emergency telephone to authenticate and verify the content of the advisory message.</p> <p>Offers the IAEA's good offices to the reporting State.</p> <p>Activates a technical team to review the technical content of the advisory message using internal procedures and tools.</p> <p>Unless otherwise instructed by the reporting State, publishes the advisory message on USIE, including any attachments and/or links to the reporting State's website, and asks CPs to confirm receipt of the message.</p> <p>Contacts the NWP's of States within 1000 km of a nuclear power plant, or within 50 km of a research reactor, that have not confirmed receipt of the advisory message on USIE or by message to the IEC's primary emergency fax, email or telephone, and establishes dedicated telephone contact with CA(A)s.</p>
<p><b>Further information exchange</b></p> <p>From reporting State</p> <p>The CA(D) sends follow-up information to IEC's primary emergency fax/email on EMERCON SRF or submits the form to USIE, possibly with attachments and/or URL of its own emergency website.</p> <p>IRMIS Data Provider(s) upload(s) the monitoring data in IRMIS, if applicable.</p> <p><b>Note:</b> If further information contains a change in the emergency class, the CA(D) calls the IEC on its primary emergency telephone to confirm receipt of the message.</p> <p><b>Note:</b> If applicable, CA(A)/CA(D), through the Encrypted Information Publisher(s) designated in their organizations, submits encrypted information that may be relevant for other States on EMERCON SRF to USIE.</p>	<p>May distribute follow-up information to all CPs' primary emergency fax/email.</p> <p>Publishes follow-up information on USIE, including any attachments and/or links to the reporting State's own website.</p>

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<b>SITE AREA EMERGENCY</b>	
<b>ACTIONS BY CPs</b>	<b>ACTIONS BY THE IEC</b>
<p>Requests for information from other States</p>	<p><i>State requesting information</i></p> <p>CPs may request information via message to the IEC’s primary emergency fax, email or telephone, or submit an EMERCON RFI to USIE.</p>
	<p>Compiles requests and forwards these to the CA(D)’s primary emergency fax or email of the relevant State.</p> <p>Distributes answers or provides answers to requesting CPs to their primary emergency fax, email or telephone.</p>
	<p><i>Reporting State</i></p> <p>CA(D) sends replies to the IEC’s primary emergency fax/email or provides answers to the IEC by telephone on its primary emergency telephone.</p>
	<p><b>Note:</b> If several States requests the same type of information or if there is a need to counteract false rumours, the IEC sends a message to the CA(A)s’ primary emergency fax/email of all States or publishes the information on USIE.</p>
<p><b>Assessment and prognosis</b></p>	<p>Reporting State sends relevant and available information to the IEC’s primary emergency fax/email or submits the information as an attachment to an EMERCON SRF for assessment and prognosis.</p>
	<p>Compiles and analyses information, assesses the potential consequences and prognosis of likely event development; discusses the results with reporting State, sends a summary to all CPs’ primary emergency fax/email and publishes the information on USIE.</p>
<p><b>Provision of advice or assistance</b></p>	<p>CAs or the State’s PM may send a request for assistance to the IEC’s primary emergency fax/email using EMERCON RFA or submit the request to USIE (see Section 4.5 of this manual).</p>
	<p>Acknowledges the request for assistance and verifies the content.</p> <p>Assesses the request and contacts the requesting State on its primary emergency telephone.</p> <p>Becomes the focal point for the facilitation and coordination of international assistance.</p> <p>Acts as described in Section 4.5 of this manual.</p>
<p>Assistance Action Plan</p>	<p><i>Requesting and providing States</i></p> <p>Review and revise the AAP and associated documents, as applicable, and sign off on them.</p>
	<p>Drafts an AAP and associated documents, as described in EPR–RANET 2018 [8], and provides them for all involved CPs’ on their primary emergency fax/email.</p>
	<p><i>Requesting State</i></p> <p>Supports the implementation of assistance.</p>
	<p>Facilitates and coordinates implementation of assistance.</p>

<b>SITE AREA EMERGENCY</b>	
<b>ACTIONS BY CPs</b>	<b>ACTIONS BY THE IEC</b>
<b>Provision of public information</b>	<p>CA(D) sends copies of any press releases or URLs of relevant public websites to the IEC's primary emergency fax/email or submits these to USIE.</p> <p>INES National Officer(s) of the reporting State may submit INES ERF(s) to USIE in coordination with the relevant CA.<sup>63</sup></p>
<b>Inter-agency coordination</b>	<p>Confirm awareness of the site area emergency.</p> <p>May trigger the activation of the JPLAN and acts as the focal point for the response coordination.</p> <p>Coordinates the inter-agency response of the international organizations, if needed.</p>
<b>Additional response actions</b> if the event is triggered, or suspected of being triggered, by nuclear security event(s)	<p>CA(A)/CA(D) and/or CAOC may use the EMERCON SRF on USIE to share encrypted information, such as sensitive and/or nuclear security related information, that may be relevant to other States. (The text provided in the 'Other Relevant Information' section of the EMERCON SRF can be encrypted to allow confidential information to be shared.)</p> <p>Authenticates and verifies the message and contacts CA(A)/CA(D) and/or CAOC.</p> <p>May establish liaison with EUROPOL, INTERPOL and/or other relevant international organizations as per JPLAN and its provisions.<sup>64</sup></p> <p>May inform relevant CPs on their primary emergency fax/email.</p>
<b>Termination of emergency</b>	<p>CA(D) sends information about termination of the nuclear emergency using the EMERCON SRF to the IEC's primary emergency fax/email or submits the form to USIE.</p> <p>CA(D) calls the IEC on its primary emergency telephone to confirm receipt of the message.</p> <p>Publishes the information on USIE.</p> <p>Informs all CPs on their primary emergency fax/email about the termination of the emergency.</p>

<sup>63</sup> The ERF is submitted when relevant information about the event is available and according to the national plan of using INES in emergencies. For more details, see Ref. [17].

<sup>64</sup> Respecting the instructions from the reporting State with due regard to the principle of protection of sensitive information.

## Emergency Class: FACILITY EMERGENCY

<b>Description</b>	Events, regardless of their origin, resulting in a significant decrease in nuclear or radiation safety at a facility, warranting taking protective actions and other response actions at the facility and on the site, but not warranting taking protective actions off the site. This class includes: fuel handling emergencies; in-facility fires or other emergencies not affecting safety systems; loss of shielding or control for gamma emitting installation components or spent fuel; and event(s) resulting in hazardous conditions on the site, but with no potential of a criticality or release of the radioactive material off the site that would warrant urgent protective actions off-site.
<b>Purpose</b>	To inform the IAEA as well as other States of an event with no off-site consequences and to pre-empt possible requests for information.
<b>Obligation</b>	There is <b>no obligation</b> on States Parties by virtue of the Early Notification Convention to notify the IAEA or other States of conditions representing a 'Facility Emergency' <sup>65</sup> .
<b>Expectation</b>	All <b>Member States</b> , to meet the requirements in GSR Part 7 [6], are <b>expected, on a voluntary basis, to send an advisory message</b> to the IAEA regarding a 'Facility Emergency' in order to: (1) pre-empt legitimate requests for information from other States; <sup>66</sup> and (2) for the IAEA, other relevant international organizations or other States, provide advice to Governments, the public or the media about a situation of actual, potential or perceived radiological significance.  In accordance with article 3 of the Early Notification Convention, States Parties may voluntarily notify about any type of nuclear emergency with a view to minimizing its radiological consequences.
<b>Encouragement</b>	The IAEA <b>encourages</b> States to inform the IAEA of a 'Facility Emergency', especially if the event may trigger (or has triggered) public concerns and/or wide media interest.

<sup>65</sup> Facility emergency at facilities in category I, II or III for an emergency that warrants taking protective actions and other response actions at the facility and on the site but does not warrant taking protective actions off the site. Upon declaration of this emergency class, actions shall promptly be taken to mitigate the consequences of the emergency and to protect people at the facility and on the site. Emergencies in this class do not present an off-site hazard [6].

<sup>66</sup> See article 2 of the Early Notification Convention [1].

<b>FACILITY EMERGENCY</b>	
<b>ACTIONS BY CPs</b>	<b>ACTIONS BY THE IEC</b>
<i>Response time objective: As suggested in Section 2.2.7.</i>	
<p><b>Notification or initial advisory message</b></p> <p>From reporting State</p> <p>CA(D) sends an advisory message by fax on EMERCON SRF to the IEC's primary emergency fax/email, possibly with attachments and/or URL of its own website or submits an EMERCON SRF to USIE.</p> <p>IRMIS Data Provider(s) upload(s) the monitoring data in IRMIS, if applicable.</p> <p>CA(D) calls the IEC on its primary emergency telephone to confirm receipt of the advisory message.</p>	<p>Acknowledges the advisory message on USIE</p> <p>Calls the designated CA(D) of the reporting State on the primary emergency telephone to authenticate and verify the content of the advisory message.</p> <p>Considers offering the IAEA's good offices to the reporting State.</p> <p>Considers activating a technical team to review the technical content of the advisory message using internal procedures and tools.</p> <p>Unless otherwise instructed by the reporting State, publishes the message on USIE.</p>
<p><b>Further information exchange</b></p> <p>From reporting State</p> <p>CA(D) sends further relevant information to the IEC's primary emergency fax/email on EMERCON SRF or submits the form to USIE, possibly with attachments and/or URL of its own emergency website.</p> <p>IRMIS Data Provider(s) upload(s) the monitoring data in IRMIS, if applicable (to demonstrate that there is no release of radioactive material into the environment).</p> <p><b>Note:</b> If further information contains a change in the emergency class, the CA(D) calls the IEC on its primary emergency telephone to confirm receipt of the message.</p> <p><b>Note:</b> If applicable, CA(A)/CA(D), through the Encrypted Information Publisher(s) designated in their organizations, submits encrypted information that may be relevant for other States on EMERCON SRF to USIE.</p>	<p>Publishes follow-up information on USIE, including any attachments and/or links to the reporting State's own website.</p>
<p>Requests for information from other States</p> <p><i>State requesting information</i></p> <p>CPs may request information via message to the IEC's primary emergency fax, email or telephone, or submit an EMERCON RFI to USIE.</p>	<p>Compiles requests and forwards these to the CA(D)'s primary emergency fax or email of the relevant State.</p> <p>Distributes answers or provides answers to requesting CPs to their primary emergency fax/email/telephone.</p>

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<b>FACILITY EMERGENCY</b>	
<b>ACTIONS BY CPs</b>	<b>ACTIONS BY THE IEC</b>
	<p><b>Note:</b> If several States requests the same type of information or if there is a need to counteract false rumours, the IEC sends a message to the CA(A)s' primary emergency fax/email of all States, or publishes the information on USIE.</p>
<p><b>Assessment and prognosis</b></p>	<p>The reporting State sends relevant and available information to the IEC's primary emergency fax/email or submits the information as an attachment to an EMERCON SRF to USIE for assessment and prognosis.</p>
<p><b>Provision of advice or assistance</b></p>	<p>CAs or the State's PM may send a request for assistance to the IEC's primary emergency fax/email using an EMERCON RFA or submit the request to USIE (see Section 4.5 of this manual).</p>
<p>Assistance Action Plan</p>	<p>Acknowledges the request for assistance and verifies the content.</p> <p>Assesses the request and contacts the requesting State on its primary emergency telephone.</p> <p>Becomes the focal point for the facilitation and coordination of international assistance.</p> <p>Acts as described in Section 4.5 of this manual.</p>
<p><i>Requesting and providing States</i></p>	<p>Drafts an AAP and associated documents, as described in EPR-RANET 2018 [8], and provides them to all involved CPs on their primary emergency fax/email.</p>
<p>Review and revise the AAP and associated documents, as applicable, and sign off on them.</p>	
<p><i>Requesting State</i></p>	<p>Facilitates and coordinates implementation of assistance.</p>
<p>Supports the implementation of assistance.</p>	
<p><b>Provision of public information</b></p>	<p>CA(D) sends copies of any press releases or URLs of relevant public websites to the IEC's primary emergency fax/email, or submits these to USIE.</p> <p>INES National Officer(s) of the reporting State may submit INES ERF(s) to USIE in coordination with the relevant CA.<sup>67</sup></p>
<p><b>Inter-agency coordination</b></p>	<p>Publishes press releases/URLs on USIE.</p> <p><b>IAEA:</b> May publish public statement(s) on the IAEA's public website.</p>
<p>Confirm awareness of the facility emergency.</p>	<p>Considers triggering activation of the JPLAN</p> <p>Coordinates the inter-agency response of the international organizations, if needed.</p>

<sup>67</sup> The ERF is submitted when relevant information about the event is available and according to the national plan of using INES in emergencies. For more details, see Ref. [17].

<b>FACILITY EMERGENCY</b>	
<b>ACTIONS BY CPs</b>	<b>ACTIONS BY THE IEC</b>
<p><b>Additional response actions</b> if the event is triggered, or suspected of being triggered, by nuclear security event(s)</p>	<p>CA(A)/CA(D) and/or CAOC may use the EMERCON SRF on USIE to share encrypted information, such as sensitive and/or nuclear security related information, that may be relevant to other States. (The text provided in the 'Other Relevant Information' section of the EMERCON SRF can be encrypted to allow confidential information to be shared.)</p>
<p><b>Termination of emergency</b></p>	<p>Authenticates and verifies the message and contacts CA(A)/CA(D) and/or CAOC.</p> <p>May establish liaison with EUROPOL, INTERPOL and/or other relevant international organizations as per JPLAN and its provisions.<sup>68</sup></p> <p>May inform relevant CPs on their primary emergency fax/email.</p>
<p>CA(D) sends information about the termination of the nuclear emergency using the EMERCON SRF to the IEC's primary emergency fax/email or submits the form to USIE.</p> <p>The CA(D) calls the IEC on its primary emergency telephone to confirm receipt of the message.</p>	<p>Publishes the information on USIE.</p> <p>Informs all CPs on their primary emergency fax/email about the termination of the emergency.</p>

<sup>68</sup> Respecting the instructions from the notifying State with due regard to the principle of protection of sensitive information.

## Emergency Class: ALERT

<b>Description</b>	Events, regardless of their origin, resulting in an actual or potential decrease of nuclear or radiation safety at a facility, warranting taking actions to assess and mitigate, as necessary, the potential consequences at the facility. This class includes events such as fires, natural external hazards, human errors, threats and instrumentation failures, with the potential to result in degradation of safety systems and/or security systems.
<b>Purpose</b>	To inform the IAEA as well as other States about an enhanced state of readiness in anticipation of the possibility that the situation may worsen, and rapid distribution of authenticated information may become necessary.
<b>Obligation</b>	There is <b>no obligation</b> on States Parties by virtue of the Early Notification Convention to notify the IAEA or other States of conditions representing an ‘Alert’ <sup>69</sup> .
<b>Expectation</b>	All <b>States</b> , to meet the requirements in GSR Part 7 [6], are <b>expected, on a voluntary basis, to send an advisory message</b> to the IAEA regarding an ‘Alert’ in order to: (1) pre-empt legitimate requests for information from other States; <sup>70</sup> (2) provide advance warning to the IAEA, other relevant organizations or other States of a developing situation so that they can be ready to respond should the situation worsen; and (3) for the IAEA, other relevant international organizations or other States, provide advice to Governments, the public or the media on a situation of perceived radiological significance.  In accordance with article 3 of the Early Notification Convention, States Parties may voluntarily notify about any type of nuclear emergency with a view to minimizing its radiological consequences.
<b>Encouragement</b>	The IAEA <b>encourages</b> States to inform the IAEA of an ‘Alert’, especially when this event may attract (or has attracted) wide media coverage.

<sup>69</sup> Alert at facilities in category I, II or III for an event that warrants taking actions to assess and to mitigate the potential consequences at the facility. Upon declaration of this emergency class, actions shall promptly be taken to assess and to mitigate the potential consequences of the event and to increase the readiness of the on-site response organizations [6].

<sup>70</sup> See article 2 of the Early Notification Convention [1].

<b>ALERT</b>	
<b>ACTIONS BY CPs</b>	<b>ACTIONS BY THE IEC</b>
<i>Response time objective: As suggested in Section 2.2.7.</i>	
<p><b>Notification or initial advisory message</b></p> <p>From reporting State</p>	<p>CA(D) sends the advisory message on EMERCON SRF to the IEC's primary emergency fax/email, possibly with attachments and/or URL of its own website or submits the message to USIE.</p> <p>CA(D) calls the IEC on its primary emergency telephone to confirm receipt of the advisory message.</p>
<p><b>Further information exchange</b></p> <p>From reporting State</p>	<p>Acknowledges the advisory message on USIE.</p> <p>Calls the designated CA(D) of the reporting State on its primary emergency telephone to authenticate and verify the content of the advisory message.</p> <p>Considers activating a technical team to review the technical content of the advisory message using internal procedures and tools.</p> <p>Unless otherwise instructed by the reporting State, publishes the message on USIE.</p>
<p>Requests for information from other States</p>	<p>CA(D) sends further relevant information to the IEC's primary emergency fax/email on EMERCON SRF or submits this information to USIE, possibly with attachments and/or URL of its own emergency website.</p> <p>IRMIS Data Provider(s) upload(s) the monitoring data in IRMIS, if applicable (to demonstrate that there is no release of radioactive material into the environment).</p> <p><b>Note:</b> If the further information contains a change in the emergency class, the CA(D) calls the IEC on its primary emergency telephone to confirm receipt of the message.</p> <p><b>Note:</b> If applicable, CA(A)/CA(D) and/or CAOC submits encrypted information, such as sensitive and/or nuclear security related information, that may be relevant for other States on EMERCON SRF to USIE.</p>
	<p><i>State requesting information</i></p> <p>CPs may request information via message to the IEC's primary emergency fax, email or telephone, or submit an EMERCON RFI to USIE.</p>
	<p>Compiles requests and forwards them to the CA(D)s' primary emergency fax/email of relevant States.</p> <p>Sends answers to requesting CPs' primary emergency fax/email or telephone or publishes the information on USIE.</p>
	<p><i>Reporting State</i></p> <p>CA(D) sends replies to the IEC by fax/email or provides answers to the IEC by telephone.</p>
	<p><b>Note:</b> If several States request the same type of information or if there is a need to counteract false rumours, the IEC sends a message by fax or email to the CA(A)s of all States or publishes the information on USIE.</p>

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<b>ALERT</b>	
<b>ACTIONS BY CPs</b>	<b>ACTIONS BY THE IEC</b>
<b>Assessment and prognosis</b>	<p>The reporting State sends all relevant and available information to the IEC’s primary emergency fax/email or submits the information in an attachment to an EMERCON SRF for assessment and prognosis.</p> <p>Compiles and analyses the information, assesses the potential consequences and prognosis of the likely development of the event, discusses the results with the reporting State and publishes a summary on USIE.</p>
<b>Provision of advice or assistance</b>	<p>CAs or the State’s PM may send a request for assistance to the IEC’s primary emergency fax/email on EMERCON RFA or submit the request to USIE (see Section 4.5 of this manual).</p> <p>Acknowledges the request for assistance and verifies the content.</p> <p>Assesses the request and contacts the requesting State on its primary emergency telephone.</p> <p>Becomes the focal point for the facilitation and coordination of international assistance.</p> <p>Acts as described in Section 4.5 of this manual.</p>
Assistance Action Plan	<p style="text-align: center;"><i>Requesting and providing States</i></p> <p>Review and revise the AAP and associated documents, as applicable, and sign off on them.</p> <p>Drafts an AAP and associated documents, as described in EPR–RANET 2018 [8], and provides them to all involved CPs on their primary emergency fax/email.</p> <p style="text-align: center;"><i>Requesting State</i></p> <p>Supports the implementation of assistance.</p> <p>Facilitates and coordinates implementation of assistance.</p>
<b>Provision of public information</b>	<p>CA(D) sends copies of any press release or URLs of relevant public websites to the IEC’s primary emergency fax/email or submits these to USIE.</p> <p>INES National Officer(s) of the reporting State may submit INES ERF(s) to USIE in coordination with the relevant CA.<sup>71</sup></p> <p>Publishes the press release and/or URLs on USIE.</p> <p><b>IAEA:</b> May issue public statement(s) on the IAEA’s public website.</p>
<b>Inter-agency coordination</b>	<p>Confirm awareness of the alert.</p> <p>Considers triggering activation of the JPLAN.</p> <p>Coordinates the inter-agency response of the international organizations, if needed.</p>

<sup>71</sup> The ERF is submitted when relevant information about the event is available and according to the national plan of using INES in emergencies. For more details, see Ref. [17].

<b>ALERT</b>	
<b>ACTIONS BY CPs</b>	<b>ACTIONS BY THE IEC</b>
<p><b>Additional response actions</b> if the event is triggered, or suspected of being triggered, by nuclear security event(s)</p>	<p>CA(A)/CA(D) and/or CAOC may use the EMERCON SRF on USIE to share encrypted information, such as sensitive and/or nuclear security related information, that may be relevant to other States. (The text provided in the 'Other Relevant Information' section of the EMERCON SRF can be encrypted to allow confidential information to be shared.)</p> <p>Authenticates and verifies the message and contacts CA(A)/CA(D) and/or CAOC.</p> <p>May establish liaison with EUROPOL, INTERPOL and/or other relevant international organizations as per JPLAN and its provisions.<sup>72</sup></p> <p>May inform relevant CPs on their primary emergency fax/email.</p>
<p><b>Termination of emergency</b></p>	<p>CA(D) sends information about termination of the nuclear emergency, using the EMERCON SRF, to the IEC's primary emergency fax/email or submits the form to USIE.</p> <p>Publishes the information on USIE.</p> <p>Notifies all CPs on their primary emergency fax/email about the termination of the emergency.</p> <p>The CA(D) calls the IEC on its primary emergency telephone to confirm receipt of the message.</p>

<sup>72</sup> Respecting the instructions from the notifying State with due regard to the principle of protection of sensitive information.

## OTHER EVENTS IN A NUCLEAR FACILITY

<b>Description</b>	Any other event, regardless of its origin, in a nuclear facility involving an insignificant decrease in nuclear or radiation safety that may raise public concern and/or media interest or that may provide lessons to be learned by the international community.
<b>Purpose</b>	To inform the IAEA as well as other States of an event in a nuclear facility that has raised public concern and/or media interest, despite its lack of significance regarding protection and safety.
<b>Obligation</b>	There is <b>no obligation</b> on States Parties by virtue of the Early Notification Convention to notify the IAEA or other States of conditions representing such an event.
<b>Expectation</b>	All <b>Member States</b> , to meet the requirements in GSR Part 7 [6], are <b>expected, on a voluntary basis, to send an advisory message</b> to the IAEA and other States in order to: (1) provide authoritative information on a situation which triggered, or is likely to trigger, public and media interest; and (2) pre-empt legitimate requests for information from other States. <sup>73</sup>  In accordance with article 3 of the Early Notification Convention, States Parties may voluntarily notify about any type of nuclear emergency with a view to minimizing its radiological consequences.
<b>Encouragement</b>	The IAEA encourages all States to inform the IAEA of such events, especially when this event has attracted or is likely to attract wide media coverage.
<b>Actions</b>	The CA(D) may inform the IEC about the event through USIE using the ENF. When it is submitted on the ENF through USIE, the information is not verified by the IAEA and becomes available under the event on USIE at the moment of its submission by the CA(D). If it is sent by fax, the IEC converts the message into a USIE ENF. <b>The ENF should not be used for ongoing events.</b>  If deemed appropriate, the IEC may assess the event and its potential consequences. If there are any lessons identified, the IEC may prepare an event summary and publish it on USIE.  If the event has been triggered, or is suspected of having been triggered, by a nuclear security event or events that may have implications for nuclear security in other States, the IEC may inform CPs as appropriate, respecting any confidentiality, conditions and instructions received from the reporting State.

<sup>73</sup> See article 2 of the Early Notification Convention [1].



## RADIOLOGICAL EMERGENCIES

### (Events not specific to nuclear facilities)

#### Event Type: RELEASE FROM A FACILITY

<b>Description</b>	Events, regardless of their origin, resulting in a release of radioactive material to the environment from a non-nuclear facility: for example, such as a release from an isotope production facility or a release as a result of a melted dangerous radioactive source in a scrap metal reprocessing plant, etc.
<b>Purpose</b>	To inform the IAEA as well as other States of an event, its actual or potential radiological consequences and protective actions.
<b>Obligation</b>	If a release of radioactive material occurs or is likely to occur and results or may result in a transboundary release, <b>States Parties</b> to the Early Notification Convention <b>are obliged to notify</b> potentially affected States and the IAEA, <b>provide relevant information</b> and <b>respond to requests for information</b> from affected States.
<b>Expectation</b>	<p><b>All Member States</b>, to meet the requirements in GSR Part 7 [6], are <b>expected, on a voluntary basis, to send an advisory message, provide relevant information</b> and <b>respond to requests for information</b> concerning a transnational or transboundary emergency related to a release from a facility.</p> <p>A State may <b>voluntarily send an advisory message</b> to the IAEA regarding a release from a facility in order to: (1) pre-empt legitimate requests for information from other States;<sup>74</sup> and (2) provide the IAEA, other relevant international organizations or other States with advice for Governments, the public or the media about a situation of actual, potential or perceived radiological significance.</p> <p>In accordance with article 3 of the Early Notification Convention, States Parties may voluntarily notify about any type of nuclear emergency with a view to minimizing its radiological consequences.</p>
<b>Encouragement</b>	The IAEA <b>strongly encourages</b> States to inform the IAEA of such an event, especially when this event may attract or has attracted wide media attention.

<sup>74</sup> See article 2 of the Early Notification Convention [1].

<b>RELEASE FROM A FACILITY</b>	
<b>ACTIONS BY CPs</b>	<b>ACTIONS BY THE IEC</b>
<i>Response time objective: As suggested in Section 2.2.7.</i>	
<p><b>Notification or initial advisory message</b></p> <p>From notifying/reporting State</p>	<p>CA(D) sends notification/initial advisory message to the IEC’s primary emergency fax/email on EMERCON SRF, possibly with attachments and/or URL of its own website or submits the notification/initial advisory message to USIE.</p> <p>IRMIS Data Provider(s) upload(s) the monitoring data in IRMIS, if applicable.</p> <p>CA(D) calls the IEC on its primary emergency telephone to confirm receipt of the notification/advisory message.</p>
<p><b>Further information exchange</b></p> <p>From notifying/reporting State</p>	<p>CA(D) sends further relevant information on EMERCON SRF to the IEC’s primary emergency fax/email or submits the form to USIE, possibly with attachments and/or URL for its own emergency website.</p> <p>IRMIS Data Provider(s) upload(s) the monitoring data in IRMIS, if applicable.</p> <p><b>Note:</b> If applicable, CA(A)s/CA(D)s, through the Encrypted Information Publishers designated in their organizations, submit encrypted information that may be relevant to other States on EMERCON SRF to USIE.</p>
<p>Meteorological products</p>	<p>CA(D) may generate national meteorological products or request these from the WMO RSMC; CA(D) sends the results to the IEC’s primary emergency email or submits these as attachment on an EMERCON SRF to USIE.</p>
<p>Requests for information from other States</p>	<p><i>State requesting information</i></p> <p>CPs may request information via message to the IEC’s primary emergency fax/email/telephone or submit and EMERCON RFI to USIE.</p>
	<p>May request the CA(A)s of other relevant States to provide information on EMERCON SRF.</p> <p>Compiles requests and forwards them to the CA(D)’s primary emergency fax or email of the State requesting the information. Establishes links on USIE to other States’ emergency websites providing relevant information.</p> <p>Sends answers to requesting CPs’ primary emergency fax/email or publishes the information on USIE.</p>

<b>RELEASE FROM A FACILITY</b>	
<b>ACTIONS BY CPs</b>	<b>ACTIONS BY THE IEC</b>
<p><i>Reporting State</i></p> <p>CA(D) sends replies to the IEC by fax/email or provides answers to the IEC by telephone.</p>	<p><b>Note:</b> If several States requests the same type of information or if there is a need to counteract false rumours, the IEC sends a message to the CA(A)s' primary emergency fax/email of all States or publishes the information on USIE.</p>
<p><b>Assessment and prognosis</b></p> <p>The reporting State sends all relevant and available information to the IEC's primary emergency fax/email or submits the information as an attachment to an EMERCON SRF to USIE for assessment and prognosis.</p>	<p>Compiles and analyses information, assesses the potential consequences and prognosis of the likely development of the event, discusses the results with the reporting State, sends a summary to all CPs primary emergency fax/email and publishes the information on USIE.</p> <p>The IEC acts as described in Section 4.4 of this manual</p>
<p><b>Provision of advice or assistance</b></p> <p>CAs or the State's PM may send a request for assistance to the IEC's primary emergency fax/email using EMERCON RFA or submit the request to USIE (see Section 4.5 of this manual).</p>	<p>Acknowledges the request for assistance and verifies the content.</p> <p>Assesses the request and contacts the requesting State on its primary emergency telephone.</p> <p>Becomes the focal point for the facilitation and coordination of international assistance. Acts as described in Section 4.5 of this manual.</p>
<p>Arranging assistance</p> <p><i>Requesting and providing States</i></p> <p>Review and revise the AAP and associated documents, as applicable, and sign off on them.</p> <p><i>Requesting State</i></p> <p>Supports the implementation of assistance.</p>	<p>Drafts an AAP and associated documents, as described in EPR-RANET 2018 [8], and provides them to all involved CPs on their primary emergency fax/email.</p> <p>Facilitates and coordinates implementation of assistance.</p>
<p><b>Provision of public information</b></p> <p>CA(D) sends copies of any press releases or URLs of relevant public websites to the IEC's emergency fax/email or submits these to USIE.</p> <p>INES National Officer(s) of the reporting State may submit INES ERF(s) to USIE in coordination with the relevant CA.<sup>75</sup></p>	<p>Publishes the press release/URLs on USIE.</p> <p><b>IAEA:</b> May publish public statement(s) on the IAEA's public website.</p>

<sup>75</sup> The ERF is submitted when relevant information about the event is available and according to the national plan for using INES in emergencies. For more details, see Ref. [17].

<b>RELEASE FROM A FACILITY</b>	
<b>ACTIONS BY CPs</b>	<b>ACTIONS BY THE IEC</b>
<p><b>Inter-agency coordination</b></p>	<p>International organizations, in accordance with their mandates, may establish relevant links and communication channels with States (including respective national focal points), other competent organizations or agencies, regional centres and programmes.</p> <p>Considers triggering activation of the JPLAN.</p> <p>Coordinates the inter-agency response of the international organizations, if needed.</p>
<p><b>Additional response actions</b> if the event is triggered, or suspected of being triggered, by nuclear security event(s)</p>	<p>CA(A)/CA(D) and/or CAOC may use the EMERCON SRF on USIE to share encrypted information, such as sensitive and/or nuclear security related information, that may be relevant to other States. (The text provided in the ‘Other Relevant Information’ section of the EMERCON SRF can be encrypted to allow confidential information to be shared.)</p> <p>Authenticates and verifies the message and contacts CA(A)/CA(D) and/or CAOC.</p> <p>May establish liaison with EUROPOL, INTERPOL and/or other relevant international organizations as per JPLAN and its provisions.<sup>76</sup></p> <p>May inform relevant CPs on their primary emergency fax/email.</p>
<p><b>Termination of emergency</b></p>	<p>CA(D) sends information about the termination of the event, using the EMERCON SRF, to the IEC’s primary emergency fax/email or submits the form to USIE.</p> <p>Publishes the information on USIE.</p> <p>The CA(D) calls the IEC on its primary emergency telephone to confirm receipt of the message.</p> <p>Informs all CPs on their emergency fax/email about the termination of event.</p>

<sup>76</sup> Respecting the instructions from the notifying State with due regard to the principle of protection of sensitive information.

## Event Type: MISSING DANGEROUS SOURCE

<b>Description</b>	A lost or stolen dangerous <sup>77</sup> source, i.e. one that, if not brought under control, could give rise to exposure that is sufficient to cause severe deterministic effects.
<b>Purpose</b>	To inform the IAEA as well as other States and provide relevant information aimed at alerting other States to be ready to respond, if the source is dispersed or moved or if there is information that it could be dispersed or moved across national border(s), including: (1) to respond to issues of international trade (particularly in scrap metal) with the relevant State; or (2) to respond to issues that are perceived to be radiologically significant by the media or the public.
<b>Obligation</b>	There is <b>no obligation on States Parties</b> by virtue of the Early Notification Convention to notify the IAEA or other States of conditions representing such an event, <b>unless the missing dangerous source is suspected of being dispersed or moved across the national border(s).</b>
<b>Expectation</b>	<p><b>All Member States</b>, to meet the requirements in GSR Part 7 [6], are <b>expected, on a voluntary basis, to send an advisory message, provide relevant information and respond to requests for information</b> concerning a transnational or transboundary emergency related to a missing dangerous source.</p> <p>A <b>State</b> may <b>voluntarily</b> send an advisory message to the IAEA regarding a ‘missing dangerous source’ that does not represent a transboundary emergency, in order to: (1) pre-empt legitimate requests for information from other States;<sup>78</sup> (2) prompt the IAEA to offer its good offices;<sup>79</sup> (3) provide advance warning to the IAEA, other relevant organizations or other States, of a developing situation so that they can be ready to respond if needed; and (4) for the IAEA, other relevant international organizations or States, provide advice to Governments, the public or the media about a developing situation of actual, potential or perceived radiological significance.</p> <p>In accordance with article 3 of the Early Notification Convention, States Parties may voluntarily notify about any type of nuclear emergency with a view to minimizing its radiological consequences.</p>
<b>Encouragement</b>	The IAEA <b>strongly encourages</b> States to inform the IAEA of such an event, especially when this event may attract or has attracted wide media attention.

<sup>77</sup> Examples of ‘dangerous sources’ [22],[23], as defined here, are the following: industrial radiography and teletherapy sources; irradiators; radiothermal generators; fixed industrial gauges involving high activity sources; high dose rate and low dose rate brachytherapy sources; well logging sources and similar sources. The following would not be considered ‘dangerous sources’: moisture density gauges and fixed industrial gauges involving lower activity sources, and similar sources.

<sup>78</sup> See article 2 of the Early Notification Convention [1].

<sup>79</sup> See article 5 of the Assistance Convention [1].

<b>MISSING DANGEROUS SOURCE</b>	
<b>ACTIONS BY THE CPs</b>	<b>ACTIONS BY THE IEC</b>
<i>Response time objective:</i> As suggested in Section 2.2.7.	
<p><b>Initial advisory message</b></p> <p>From reporting State</p> <p>CA(D) sends the initial advisory message — particularly if the source is expected to cross or has crossed national border(s) — on EMERCON SRF, possibly with attachments and/or the URL of its own website, to the IEC’s primary emergency fax/email or submits the EMERCON SRF to USIE.</p> <p>IRMIS Data Provider(s) upload(s) the monitoring data in IRMIS, if applicable.</p> <p>CA(D) calls the IEC on its primary emergency telephone to confirm receipt of the advisory message.</p>	<p>Acknowledges the initial advisory message on USIE.</p> <p>Calls the designated CA(D) of the reporting State on its primary emergency telephone to authenticate and verify the content of the advisory message.</p> <p><b>Note:</b> If it is suspected that the source may be taken or has been taken across the national border(s), the IEC informs the NWP’s of the relevant States as soon as possible on their primary emergency fax/email, in accordance with the instructions of the reporting State and passes on the reporting State’s advisory message, if appropriate. <b>Otherwise</b>, the IEC informs the CPs of relevant States on their primary emergency fax/email within 24 hours, in accordance with the instructions of the reporting State, and passes on the State’s advisory message, if appropriate.</p> <p>Offers the IAEA’s good offices to the reporting State and potentially affected States.</p> <p>May activate a technical team to review the technical content of the advisory message using internal procedures and tools.</p> <p>Publishes an advisory message on USIE for relevant States, including any attachments and/or links to the reporting State’s website, as appropriate. Sends an alert message via the USIE alert channels to relevant States, requesting them to access USIE and confirm receipt of the advisory message.</p> <p>Contacts the NWP’s of relevant States of the situation, if those States have not confirmed the receipt of the advisory message on USIE or by message to the IEC’s primary emergency fax, email or telephone.</p>
<p><b>Further information exchange</b></p> <p>From reporting State</p> <p>CA(D) sends further relevant information on EMERCON SRF to IEC’s primary emergency fax/email or submits the form to USIE, possibly with attachments and/or URL of its own emergency website.</p> <p>IRMIS Data Provider(s) upload(s) the monitoring data in IRMIS, if applicable.</p>	<p>Respecting confidentiality constraints, publishes follow-up information on USIE, including any attachments and/or links to the reporting State’s own website.</p>

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<b>MISSING DANGEROUS SOURCE</b>	
<b>ACTIONS BY THE CPs</b>	<b>ACTIONS BY THE IEC</b>
<p><b>Note:</b> If applicable, CA(A)/CA(D), through the Encrypted Information Publisher(s) designated in their organizations, submits encrypted information that may be relevant for other States on EMERCON SRF to USIE.</p>	
<p>Information from potentially affected States</p> <p><i>State(s) from which information is requested</i></p> <p>CA(A) sends relevant information and the URL of relevant national websites on EMERCON SRF to the IEC’s primary emergency fax/email or submits this information to USIE.</p> <p>IRMIS Data Provider(s) upload(s) the monitoring data in IRMIS, if applicable.</p>	<p>May request the CA(A)s of other relevant States to provide information on EMERCON SRF.</p> <p>Respecting confidentiality constraints, compiles information, sends a summary to the CA(A)s’ primary emergency fax/email of relevant States, or publishes the information on USIE for those relevant States only.</p> <p>Establishes links on USIE to other States’ emergency websites, providing relevant information.</p>
<p>Requests for information from other States</p> <p><i>State requesting information</i></p> <p>CPs may request information from the IEC via a message to the IEC’s primary emergency fax, email or telephone or submit an EMERCON RFI to USIE.</p> <p><i>State from which information is requested</i></p> <p>CA(D) of the reporting State or CA(A)s of other relevant States sends replies to the IEC’s primary emergency fax/email or provides answers to the IEC on its primary emergency telephone.</p>	<p>Compiles requests and forwards them to the CA(D)s on the primary emergency fax/email of the reporting State, or the CA(A)s of other relevant States.</p> <p>Respecting confidentiality constraints, distributes answers to primary emergency fax/emails or communicates answers to requesting CPs on their primary emergency telephone and may post these answers on USIE.</p> <p><b>Note:</b> If several States requests the same type of information, or if there is a need to counteract false rumours, the IEC sends a message to the CA(A)s’ primary emergency fax/emails of all States or publishes the information on USIE.</p>

<b>MISSING DANGEROUS SOURCE</b>		
<b>ACTIONS BY THE CPs</b>	<b>ACTIONS BY THE IEC</b>	
<b>Assessment and prognosis</b>	<p>The reporting State sends relevant and available information to the IEC's primary emergency fax/email or submits the information as an attachment to an EMERCON SRF to USIE for assessment and prognosis.</p>	<p>Compiles and analyses information, assesses the potential consequences and prognosis of the likely development of the event, discusses the results with the reporting State and publishes the information on USIE.</p> <p>Acts as described in Section 4.4 of this manual.</p>
<b>Provision of advice and assistance</b>	<p>CAs or the State's PM may send a request for assistance to the IEC's primary emergency fax/email using EMERCON RFA or submit the request to USIE (see Section 4.5 of this manual).</p>	<p>Acknowledges the request for assistance and verifies the content.</p> <p>Assesses the request and contacts the requesting State on its primary emergency telephone.</p> <p>Becomes the focal point for the facilitation and coordination of international assistance.</p> <p>Acts as described in Section 4.5 of this manual.</p>
Arranging assistance mission	<p style="text-align: center;"><i>Requesting and providing States</i></p> <hr style="border-top: 1px dashed black;"/> <p>Review and revise the AAP and associated documents, as applicable, and sign off on them.</p> <hr style="border-top: 1px dashed black;"/> <p style="text-align: center;"><i>Requesting State</i></p> <hr style="border-top: 1px dashed black;"/> <p>Supports the implementation of assistance.</p>	<p>Drafts an AAP and associated documents, as described in EPR-RANET 2018 [8], and provides them to all involved CPs on their primary emergency fax/email.</p> <p>Facilitates and coordinates the implementation of assistance.</p>
<b>Provision of public information</b>	<p>CA(D) sends copies of any press releases or URLs of relevant public websites to the IEC's primary emergency fax/email or submits this information to USIE.</p> <p>INES National Officer(s) of the reporting State may submit INES ERF(s) to USIE in coordination with the relevant CA.<sup>80</sup></p>	<p>Publishes press releases/URLs on USIE.</p> <p><b>IAEA:</b> May publish public statement(s) on the IAEA's public website.</p>
<b>Inter-agency coordination</b>	<p>International organizations, in accordance with their mandates, may establish relevant links and communication channels with States (including respective NWP), other competent organizations or agencies and regional centres and programmes.</p>	<p>May trigger the activation of the JPLAN.</p> <p>Acts as the focal point for the response coordination, if applicable.</p>

<sup>80</sup> The ERF is submitted when relevant information about the event is available and according to the national plan of using INES in emergencies. For more details, see Ref. [17].

<b>MISSING DANGEROUS SOURCE</b>	
<b>ACTIONS BY THE CPs</b>	<b>ACTIONS BY THE IEC</b>
<p><b>Additional response actions</b> if the event is triggered, or suspected of being triggered, by nuclear security event(s)</p>	<p>CA(A)/CA(D) and/or CAOC may use the EMERCON SRF on USIE to share encrypted information, such as sensitive and/or nuclear security related information, that may be relevant to other States. (The text provided in the ‘Other Relevant Information’ section of the EMERCON SRF can be encrypted to allow confidential information to be shared.)</p>
<p><b>Termination of emergency</b></p>	<p>Authenticates and verifies the message and contacts CA(A)/CA(D) and/or CAOC.</p> <p>May establish liaison with EUROPOL, INTERPOL and/or other relevant international organizations as per JPLAN and its provisions.<sup>81</sup></p> <p>May inform relevant CPs on their primary emergency fax/email.</p>
<p>The CA(D) sends information about the termination of the event using the EMERCON SRF to the IEC’s primary emergency fax/email or submits the form to USIE.</p> <p>The CA(D) calls the IEC on its primary emergency telephone to confirm receipt of the message.</p>	<p>Publishes the information on USIE.</p> <p>Informs all CPs on their primary emergency fax/email about the termination of the event.</p>

<sup>81</sup> Respecting the instructions from the reporting State with due regard to the principle of protection of sensitive information.



## Event Type: SEVERE OVEREXPOSURE

<b>Description</b>	Any exposure to a radiation source or intake of, or contamination with, radioactive material, which can cause severe deterministic effects <sup>82</sup> .
<b>Purpose</b>	To inform the IAEA as well as other States to be ready to: (1) respond to issues that potentially are, or are perceived to be by the media or the public, as radiologically significant; and (2) provide advice to their Governments, the public or the media regarding radiological hazards and protection issues.
<b>Obligation</b>	<b>States Parties</b> to the Early Notification Convention have <b>no obligation</b> to report a severe overexposure.
<b>Expectation</b>	All <b>Member States</b> , to meet the requirements in GSR Part 7 [6], are <b>expected, on a voluntary basis, to send an advisory message</b> to the IAEA regarding an 'overexposure' in order to: (1) prompt the IAEA to offer its good offices; <sup>83</sup> and (2) provide advance warning to the IAEA, other relevant organizations or other States of the event so that they can be ready to respond if needed.  In accordance with article 3 of the Early Notification Convention, States Parties may voluntarily notify about any type of nuclear emergency with a view to minimizing its radiological consequences.
<b>Encouragement</b>	The IAEA <b>encourages</b> States to inform the IAEA of such an event, especially when this event may attract or has attracted wide media attention.

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<sup>82</sup> These are normally identifiable by the appearance of early symptoms.

<sup>83</sup> See article 5 of the Assistance Convention [1].

<b>SEVERE OVEREXPOSURE</b>	
<b>ACTIONS BY THE CPs</b>	<b>ACTIONS BY THE IEC</b>
<i>Response time objective: As suggested in Section 2.2.7.</i>	
<p><b>Initial advisory message</b></p> <p>From reporting State</p>	<p>CA(D) sends an initial advisory message on EMERCON SRF to the IEC's primary emergency fax/email, possibly with attachments and/or URL of its own website or submits the message to USIE.</p> <p>CA(D) calls the IEC on its primary emergency telephone to confirm receipt of the advisory message.</p>
<p><b>Further information exchange</b></p> <p>From reporting State</p>	<p>Acknowledges the initial advisory message on USIE.</p> <p>Calls the designated CA(D) of the reporting State on its primary emergency telephone to authenticate and verify the content of the advisory message.</p> <p>Offers the IAEA's good offices to the reporting State.</p> <p>Considers activating a technical team to review the technical content using internal procedures and tools.</p> <p>Starts liaising with WHO to determine the best options for following up on the situation if it presents a public health issue.</p>
<p>Requests for information from other States</p>	<p>CA(D) sends further relevant information on EMERCON SRF to the IEC's primary emergency fax/email or submits the form to USIE, possibly with attachments and/or URL of its own emergency website.</p> <p><b>Note:</b> If applicable, CA(A)/CA(D), through the Encrypted Information Publisher(s) designated in their organizations, submits encrypted information that may be relevant to other States on EMERCON SRF to USIE.</p>
<p><i>State requesting information</i></p> <p>CA(A) or the State's PM may request information from the IEC via message to the IEC's primary emergency fax/email or telephone or submits an EMERCON RFI to USIE.</p> <p><i>State from which information is requested</i></p> <p>CA(D) of the reporting State or CA(A)s of other relevant States send replies to the IECs primary emergency fax/email or provides answers to the IEC's primary emergency telephone.</p>	<p>Respecting confidentiality constraints, publishes follow-up information on USIE, including any attachments and/or links to the reporting State's own website.</p> <p>Compiles requests, forwards them to the CA(D) of the reporting State or the CA(A)s of other relevant States on their primary emergency fax/email or telephone.</p> <p>Respecting confidentiality constraints, distributes answers to primary emergency fax/email or communicates answers by telephone to primary emergency telephone of requesting CPs.</p> <p><b>Note:</b> If several States requests the same type of information or if there is a need to counteract false rumours, the IEC sends a message to the CA(A)s of all States on their primary emergency fax/emails or publishes the information on USIE.</p>

<b>SEVERE OVEREXPOSURE</b>		
	<b>ACTIONS BY THE CPs</b>	<b>ACTIONS BY THE IEC</b>
<b>Assessment and prognosis</b>	The reporting State sends relevant and available information to the IEC's primary emergency fax/email or submits the information as an attachment to an EMERCON SRF to USIE for assessment and prognosis.	Compiles and analyses information, assesses the potential consequences and prognosis of the likely development of the event, discusses the results with the reporting State and publishes the information on USIE.  The IEC acts as described in Section 4.4 of this manual.
<b>Provision of advice and assistance</b>	CAs or the State's PM may send a request for assistance to the IEC's primary emergency fax/email using EMERCON RFA or submit the request to USIE (see Section 4.5 of this manual).	Acknowledges the request for assistance and verifies the content.  Assesses the request and contacts the requesting State on its primary emergency telephone.  Requests the CA(A)s of other relevant States (preferably States with registered RANET capabilities) and relevant international organizations to provide the requested assistance, respecting the instructions from the reporting State.
Arranging assistance mission	<i>Requesting and providing States</i>	Drafts an AAP and associated documents, as described in EPR-RANET 2018 [8], and provides them to all involved CPs' primary emergency fax/email.  Facilitates and coordinates the implementation of the assistance.
	Review and revise the AAP and associated documents, as applicable, and sign off on them.	
	<i>Requesting State</i>	
	Supports the implementation of assistance.	
<b>Provision of public information</b>	CA(D) sends copies of any press releases or URLs of relevant public websites to the IEC's primary emergency fax/email or submits these to USIE.  The INES National Officer(s) of the reporting State may submit INES ERF(s) to USIE in coordination with the relevant CA. <sup>84</sup>	Publishes the press releases/URLs on USIE.  <b>IAEA:</b> May publish public statement(s) on the IAEA's public website.



<sup>84</sup> The ERF is submitted when relevant information about the event is available and according to the national plan of using INES in emergencies. For more details, see Ref. [17].

<b>SEVERE OVEREXPOSURE</b>	
<b>ACTIONS BY THE CPs</b>	<b>ACTIONS BY THE IEC</b>
<p><b>Inter-agency coordination</b></p> <p>International organizations, in accordance with their mandates, may establish relevant links and communication channels with States (including their respective national focal points), other competent organizations or agencies, regional centres and programmes.</p>	<p>May trigger the activation of the JPLAN.</p> <p>Acts as the focal point for the response coordination, if applicable.</p>
<p><b>Additional response actions</b> if the event is triggered, or suspected of being triggered, by nuclear security event(s)</p> <p>CA(A)/CA(D) and/or CAOC may use the EMERCON SRF on USIE to share encrypted information, such as sensitive and/or nuclear security related information, that may be relevant to other States. (The text provided in the ‘Other Relevant Information’ section of the EMERCON SRF can be encrypted to allow confidential information to be shared.)</p>	<p>Authenticates and verifies the message and contacts CA(A)/CA(D) and/or CAOC.</p> <p>May establish liaison with EUROPOL, INTERPOL and/or other relevant international organizations as per JPLAN and its provisions.<sup>85</sup></p> <p>May inform relevant CPs on their primary emergency fax/email.</p>
<p><b>Termination of emergency</b></p> <p>The CA(D) sends information about the termination of the event using the EMERCON SRF to the IEC’s primary emergency fax/email or submits the form to USIE.</p> <p>The CA(D) calls the IEC on its primary emergency telephone to confirm receipt of the message.</p>	<p>Publishes the information on USIE.</p> <p>Informs all CPs on their primary emergency fax/email about the termination of the event.</p>

<sup>85</sup> Respecting the instructions from the notifying State with due regard to the principle of protection of sensitive information.

## Event Type: SPACE OBJECT RE-ENTRY

<b>Description</b>	A satellite or other space object with (a) nuclear power source(s) or (b) dangerous radioactive source(s) on board poses a risk of re-entry of radioactive material to the Earth and its atmosphere in the near future, or such re-entry is occurring/has occurred.
<b>Purpose</b>	To notify the IAEA as well as other States and provide relevant information to alert States to: (1) be ready to respond to the possibility of a nuclear powered satellite, or a satellite with radioactive material on board, making landfall or having made landfall on their territory; (2) respond to issues of international trade and travel in the potentially affected States; (3) respond to issues regarding protective actions or advice for foreign nationals or embassies within the notifying/reporting State and potentially affected States; and (4) respond to issues that are perceived to be radiologically significant by the media or the public.
<b>Obligation</b>	If a release of radioactive material occurs or is likely to occur due to a space object re-entry, <b>States Parties</b> to the Early Notification Convention that are launching a satellite or other space object with nuclear power source(s) or dangerous radioactive source(s) on board <b>are obliged to notify</b> potentially affected States and the IAEA, to <b>provide relevant information</b> and <b>respond to requests for information</b> from affected States.
<b>Expectation</b>	<p><b>All Member States</b>, to meet the requirements of GSR Part 7 [6], are <b>expected, on a voluntary basis, to send an advisory message, provide relevant information and respond to requests for information</b> concerning a transboundary or transnational emergency, which includes re-entry of a space object with nuclear power source(s) or dangerous radioactive source(s) on board.</p> <p>A State may <b>voluntarily send an advisory message</b> to the IAEA regarding a 'space object re-entry' in order to: (1) pre-empt legitimate requests for information from other States;<sup>86</sup> (2) prompt the IAEA to offer its good offices;<sup>87</sup> (3) provide advance warning to the IAEA, other relevant organizations or other States of a developing situation so that they can be ready to respond if needed; and (4) for the IAEA, other relevant international organizations or other States, provide advice to Governments, the public or the media on a developing situation of actual, potential or perceived radiological significance.</p> <p>In accordance with article 3 of the Early Notification Convention, States Parties may voluntarily notify about any type of nuclear emergency with a view to minimizing its radiological consequences.</p>
<b>Encouragement</b>	The IAEA <b>strongly encourages</b> States to inform the IAEA as well as other States of such an event.

<sup>86</sup> See article 2 of the Early Notification Convention [1].

<sup>87</sup> See article 5 of the Assistance Convention [1].

<b>SPACE OBJECT RE-ENTRY</b>	
<b>ACTIONS BY THE CPs</b>	<b>ACTIONS BY THE IEC</b>
<i>Response time objective:</i> As suggested in Section 2.2.7.	
<p><b>Notification or initial advisory message</b></p> <p>Launching State</p> <p>CA(D) sends a notification or advisory message to the IEC's primary emergency fax/email on EMERCON SRF or submits it to USIE, possibly with attachments and/or URL linking to its own website.</p> <p>Once landfall is clear, CA(D) sends a notification/advisory message to the IEC's primary emergency fax/email on EMERCON SRF, or submits it to USIE, possibly with attachments and/or URL linking to its own website.</p> <p>CA(D) calls the IEC on its primary emergency telephone to confirm receipt of the notification or advisory message.</p>	<p>Acknowledges the receipt of the notification or advisory message on USIE.</p> <p>Calls the designated CA(D) of the notifying/reporting State on its primary emergency telephone to authenticate and verify the content of the notification or advisory message.</p> <p>Immediately informs the NWP's of relevant States that may be physically affected, as well as relevant international organizations, of the notification or advisory message that has been received; sends a copy of the notification or advisory message to the CPs' primary emergency fax/email and publishes the information on USIE, including any attachments and/or URL linking to the launching State's website.</p> <p>Establishes liaison with the United Nations Office for Outer Space Affairs (UNOOSA).</p> <p>Calls the NWP's of relevant States and international organizations that have not confirmed on USIE the receipt of the notification or advisory message.</p>
<p><b>Further information exchange</b></p> <p>Launching State information from affected States</p> <p>If the satellite makes landfall at a known location, CA(D) sends further relevant information on EMERCON SRF to the IEC's primary emergency fax/email or submits it to USIE, possibly with attachments and/or URL of its own website.</p> <p>IRMIS Data Provider(s) upload(s) the monitoring data in IRMIS, if applicable.</p>	<p>Promptly informs the CPs of the States that may be physically affected, and relevant international organizations, of the additional information received on their primary emergency fax/email.</p> <p>Considers offering the IAEA's good offices to potentially affected States.</p> <p>Establishes links on USIE to other States' emergency websites that provide relevant information.</p>
<p>Requests for information from other States</p> <p><i>State requesting information</i></p> <p>CPs may request information via message to the IEC's primary emergency fax, email or telephone or submit an EMERCON RFI to USIE.</p>	<p>Compiles requests and forwards them to the CA(D) of the launching State or the CA(A)s of other relevant States.</p> <p>Obtains information from UNOOSA.</p> <p>Distributes answers to requesting CPs' primary emergency fax/emails or communicates answers to CPs primary emergency telephone.</p>

**Notification or initial advisory message**

Launching State

**Further information exchange**

Launching State information from affected States

Requests for information from other States

<b>SPACE OBJECT RE-ENTRY</b>	
<b>ACTIONS BY THE CPs</b>	<b>ACTIONS BY THE IEC</b>
<b>Assessment and prognosis</b>	<p><i>State from which information is requested</i></p> <p>CA(D) of the reporting State or CA(A)s of other relevant States send(s) replies to the IEC's primary emergency fax/email or communicate(s) answers to the IEC's primary emergency telephone.</p>
<b>Assessment and prognosis</b>	<p><b>Note:</b> If several States request the same type of information or if there is a need to counteract false rumours, the IEC sends a message to the primary emergency fax/email of the CA(A)s of all States or publishes the information on USIE.</p>
<b>Assessment and prognosis</b>	<p>The reporting State sends relevant and available information to the IEC's primary emergency fax/email or submits the information as an attachment to an EMERCON SRF to USIE for assessment and prognosis.</p>
<b>Assessment and prognosis</b>	<p>Compiles and analyses information, assesses the potential consequences and prognosis of the likely development of the event, discusses the results with the reporting State and publishes the information on USIE.</p> <p>Acts as described in Section 4.4 of this manual.</p>
<b>Provision of advice and assistance</b>	<p>CAs or the State's PM may send a request for assistance to the IEC's primary emergency fax/email using EMERCON RFA or submit the request to USIE (see Section 4.5 of this manual).</p>
<b>Provision of advice and assistance</b>	<p>Acknowledges the request for assistance and verifies the content.</p> <p>Assesses the request and contacts the requesting State on its primary emergency telephone.</p> <p>May request CA(A)s of other relevant States (preferably States with registered RANET capabilities) and relevant international organizations to provide requested assistance, respecting instructions from the reporting State.</p>
<b>Arranging assistance</b>	<p><i>Requesting and providing States</i></p> <p>Review and revise the AAP and associated documents, as applicable, and sign off on them.</p> <p><i>Requesting State</i></p> <p>Supports the implementation of assistance.</p>
<b>Arranging assistance</b>	<p>Drafts an AAP and associated documents, as described in EPR-RANET [8] and provides them to the primary emergency fax/email of all involved CPs.</p> <p>Facilitates and coordinates the implementation of assistance.</p>
<b>Provision of public information</b>	<p><i>Launching or affected States</i></p> <p>CA(D) sends copies of any press release or URLs of relevant public websites to the IEC's primary emergency fax/email or submits these to USIE.</p>
<b>Provision of public information</b>	<p>Publishes the press releases/URLs on USIE.</p> <p><b>IAEA:</b> May publish public statement(s) on the IAEA's public website.</p>
<b>Inter-agency coordination</b>	<p>International organizations, in accordance with their mandates, may establish relevant links and communication channels with States (including respective national focal points), other competent organizations or agencies, regional centres and programmes.</p>
<b>Inter-agency coordination</b>	<p>Considers triggering activation of the JPLAN. Acts as the focal point for the response coordination, if applicable.</p> <p>Maintains liaison with UNOOSA.</p>

<b>SPACE OBJECT RE-ENTRY</b>	
<b>ACTIONS BY THE CPs</b>	<b>ACTIONS BY THE IEC</b>
<p>None.</p>	<p>None.</p>
<p>CA(D) sends information about termination of the event using the EMERCON SRF to the IEC's primary emergency fax/email or submits the form to USIE.</p> <p>The CA(D) calls the IEC on its primary emergency telephone to confirm receipt of the message.</p>	<p>Publishes the information on USIE.</p> <p>Informs all CPs on their primary emergency fax/email about the termination of the event.</p>

**Additional response actions**  
if the event is triggered, or suspected of being triggered, by nuclear security event(s)

**Termination of emergency**

## Event Type: CONFIRMED ELEVATED RADIATION LEVELS OF UNKNOWN ORIGIN

<b>Description</b>	Elevated <sup>88</sup> dose rates or activity concentrations, with low uncertainty, in air, water, food or commodities from an unknown origin.
<b>Purpose</b>	<p>To inform the IAEA as well as other States so that they are ready to respond to issues that are potentially radiologically significant, or perceived to be radiologically significant, by the media or the public.</p> <p>This may imply the need to: (1) request information from States regarding the events possibly associated with the detection of elevated dose rates or activity concentration levels and (2) increase the type and frequency of routine radiation monitoring.</p>
<b>Obligations</b>	There is <b>no obligation</b> on <b>States Parties</b> by virtue of the Early Notification Convention to notify the IAEA or other States of conditions representing such an event.
<b>Expectation</b>	<p><b>All Member States</b>, to meet the requirements in GSR Part 7 [6], are <b>expected, on a voluntary basis, to send an advisory message, provide relevant information and respond to requests for information</b> concerning an event of actual, potential or perceived radiological significance for other States.</p> <p>In accordance with article 3 of the Early Notification Convention, States Parties may voluntarily notify about any type of nuclear emergency with a view to minimizing its radiological consequences.</p>
<b>Encouragement</b>	The IAEA <b>encourages</b> States to inform the IAEA of such an event, especially when this event may attract or has attracted wide media attention.

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<sup>88</sup> Concentration of usually detected nuclide that is at least one or two orders of magnitude higher than normally (e.g. for <sup>137</sup>Cs); presence of a nuclide that is not usually detected (e.g. <sup>106</sup>Ru); or small amount of a nuclide over a large (hundreds of kilometres) geographical area (e.g. <sup>131</sup>I).

<b>ELEVATED RADIATION LEVELS OF UNKNOWN ORIGIN</b>	
<b>ACTIONS BY THE CPs</b>	<b>ACTIONS BY THE IEC</b>
<i>Response time objective: As suggested in Section 2.2.7.</i>	
<p><b>Notification or initial advisory message</b></p> <p>From reporting State</p>	<p>CA(D) sends an initial advisory message to the IEC's primary emergency fax/email on EMERCON SRF or an ENF or submits the message to USIE, possibly with attachments and/or URL of its own website.</p> <p>IRMIS Data Provider(s) upload(s) the monitoring data in IRMIS, if applicable.</p> <p>CA(D) calls the IEC's on its primary emergency telephone to confirm receipt of the advisory message.</p>
<p><b>Further Information Exchange</b></p>	<p>Acknowledges the initial information/report or advisory message on USIE.</p> <p>Calls the designated CA(D) of the reporting State on its primary emergency telephone to authenticate and verify the content of the advisory message.</p> <p>Publishes the initial message on USIE, including any attachments and/or links to the notifying State's website.</p> <p>Considers activating a technical team to review the technical content of the advisory message using internal procedures and tools.</p>
<p>Requests for information from other States</p>	<p><b>Note:</b> If applicable, CA(A)/CA(D), through the Encrypted Information Publisher(s) designated in their organizations, submits encrypted information that may be relevant to other States on EMERCON SRF to USIE.</p> <p>Contacts NWP/CA(A)s of other relevant States.</p> <p>Access CTBTO data.</p> <p>May request WMO to calculate back trajectories.</p> <p>Requests information from CA(D)s (through the NWP) from other States regarding the event possibly associated with the detection of elevated dose rates or activity concentration levels and on monitoring data.</p> <p>Compiles requests, forwards them to the CA(D) of the reporting State, or the CA(A)s of other relevant States on their primary emergency fax/email.</p> <p>Respecting confidentiality constraints, distributes answers to primary emergency fax/emails or communicates answers to CP's primary emergency telephones.</p> <p><b>Note:</b> If several States requests the same type of information or if there is a need to counteract false rumours, the IEC sends a message to the CA(A)s of all States on their primary emergency fax/email or publishes the information on USIE.</p>
<i>State from which information is requested</i>	
<i>State requesting information</i>	
<p>CA(A)s send relevant information on EMERCON SRF to the IEC's primary emergency fax/email or submit relevant information to USIE, possibly including attachments or the URLs of national emergency websites.</p> <p>IRMIS Data Provider(s) upload(s) the monitoring data in IRMIS, if applicable.</p>	<p>CPs may request information via message to the IEC's primary emergency fax, telephone, or email, or submit EMERCON RFI to USIE.</p>

<b>ELEVATED RADIATION LEVELS OF UNKNOWN ORIGIN</b>	
<b>ACTIONS BY THE CPs</b>	<b>ACTIONS BY THE IEC</b>
<b>Assessment and prognosis</b>	<p>The CAs send relevant and available information to the IEC’s primary emergency fax/email or submit the information as an attachment to an EMERCON SRF for assessment and prognosis.</p> <p>Compiles and analyses information, assesses the potential consequences and prognosis of the likely development of the event, discusses the results with the reporting State and publishes the information on USIE.</p>
<b>Provision of advice and assistance</b>	<p>CAs or the State’s PM may send a request for assistance to the IEC’s primary emergency fax or email using EMERCON RFA or submit the request to USIE (see Section 4.5 of this manual).</p> <p>Acknowledges the request for assistance and verifies the content.</p> <p>Assesses the request and contacts the requesting State on its primary emergency telephone.</p> <p>May request the CA(A)s of other relevant States (preferably States with registered RANET capabilities) and relevant international organizations to provide the requested assistance, respecting the instructions from the reporting State.</p>
Arranging assistance mission	<p style="text-align: center;"><i>Requesting and providing States</i></p> <p>Review and revise the AAP and associated documents, as applicable, and sign off on them.</p> <p>Supports the implementation of assistance.</p> <p>Drafts an AAP and associated documents, as described in EPR-RANET 2018 [8], and provides them to all involved CPs on their primary emergency fax/emails.</p> <p>Facilitates and coordinates implementation of assistance.</p>
<b>Provision of public information</b>	<p>CA(D) sends copies of any press releases or URLs of relevant public websites to the IEC’s primary emergency fax/email or submits these to USIE.</p> <p>Publishes the press releases/URLs on USIE.</p> <p><b>IAEA:</b> May publish public statement(s) on the IAEA’s public website.</p> <p>The INES National Officer(s) in the State of origin of the elevated radiation levels may submit INES ERF(s) to USIE in coordination with the relevant CA.<sup>89</sup></p>
<b>Inter-agency coordination</b>	<p>International organizations, in accordance with their mandates, may establish relevant links and communication channels with States (including their respective national focal points), other competent organizations or agencies, regional centres and programmes.</p> <p>May trigger the activation of the JPLAN.</p> <p>Acts as the focal point for the response coordination, if applicable.</p>

<sup>89</sup> The ERF is submitted when relevant information about the event is available and according to the national plan of using INES in emergencies. For more details, see Ref. [17].

<b>ELEVATED RADIATION LEVELS OF UNKNOWN ORIGIN</b>	
<b>ACTIONS BY THE CPs</b>	<b>ACTIONS BY THE IEC</b>
<p><b>Additional response actions</b> if the event is triggered, or suspected of being triggered, by nuclear security event(s)</p>	<p>CA(A)/CA(D) and/or CAOC may use the EMERCON SRF on USIE to share encrypted information, such as sensitive and/or nuclear security related information, that may be relevant to other States. (The text provided in the ‘Other Relevant Information’ section of the EMERCON SRF can be encrypted to allow confidential information to be shared.)</p>
<p><b>Termination of emergency</b></p>	<p>Authenticates and verifies the message and contacts CA(A)/CA(D) and/or CAOC.</p> <p>May establish liaison with EUROPOL, INTERPOL and/or other relevant international organizations as per JPLAN and its provisions.<sup>90</sup></p> <p>May inform relevant CPs on their primary emergency fax/email.</p>
<p>The CA(D) of the State of origin of the elevated radiation levels sends information about termination of the event and the transition to an existing exposure situation or to a planned exposure situation, if appropriate, to the IEC’s primary emergency fax or email using the EMERCON SRF or submits the form to USIE.</p> <p>The CA(D) calls the IEC on its primary emergency telephone to confirm receipt of the message.</p>	<p>Publishes the information on USIE.</p> <p>Informs all CPs on their primary emergency fax/email about the termination of the event.</p>

<sup>90</sup> Respecting the instructions from the notifying State with due regard to the principle of protection of sensitive information.

## Event Type: OTHER RADIOLOGICAL EVENT

<b>Description</b>	Any other radiological event, regardless of its origin, resulting in actual, potential or perceived radiological consequences. These include: (1) any other event that could result in a significant transboundary release, whether atmospheric or aquatic, e.g. a dam burst carrying radioactive material downstream into another State or a specific terrorist threat; (2) the discovery of a dangerous source out of regulatory control that has been transported across, or is suspected of having been transported across, a national border; (3) any other event resulting in significant disruption to international trade or travel; (4) any other event warranting the implementation of protective actions for foreign nationals or embassies in the State in which it occurs; (5) any other event resulting or potentially resulting in severe deterministic effects and involving a fault/problem (such as in equipment or software) that could have serious implications for safety internationally; (6) the diagnosis of medical symptoms that may have resulted from accidental exposure outside the State; (7) a transport accident involving radioactive material; and (8) any other radiological event resulting or potentially resulting in significant psychological effects among the population of a State or States, other than the State in which the event occurred and owing to the actual or perceived radiological hazard.
<b>Purpose</b>	To inform the IAEA as well as other States so that they are ready to respond to: (1) issues that are potentially radiologically significant or perceived to be radiologically significant by the media or the public; and (2) provide advice to their Governments, the public or the media regarding radiological hazards and protection issues.
<b>Obligation</b>	If, due to any radiological event, a release of radioactive material occurs or is likely to occur and results or may result in transboundary release, <b>States Parties</b> to the Early Notification Convention <b>are obliged to notify</b> potentially affected States and the IAEA, <b>provide relevant information</b> and <b>respond to requests for information</b> from affected States.
<b>Expectation</b>	<p>All <b>Member States</b>, to meet the requirements in GSR Part 7 [6], are <b>expected, on a voluntary basis, to send an advisory message, provide relevant information and respond to requests for information</b> concerning an event in which a transnational release of radioactive materials occurs or is likely to occur.</p> <p>A State may <b>voluntarily send an advisory message</b> to the IAEA in order to: (1) preempt legitimate requests for information from other States;<sup>91</sup> (2) prompt the IAEA to offer its good offices;<sup>92</sup> (3) provide advance warning to the IAEA, other relevant organizations or other States, of a developing situation so they can be ready to respond should the situation worsen; and (4) for the IAEA, other relevant international organizations or other States, provide advice to Governments, the public or the media about a developing situation of actual, potential or perceived radiological significance.</p> <p>In accordance with article 3 of the Early Notification Convention, States Parties may voluntarily notify about any type of nuclear emergency with a view to minimizing its radiological consequences.</p>
<b>Encouragement</b>	The IAEA <b>encourages</b> States to inform the IAEA of such an event, especially when this event may attract or has attracted wide media attention.

<sup>91</sup> See article 2 of the Early Notification Convention [1].

<sup>92</sup> See article 5 of the Assistance Convention [1].

<b>OTHER RADIOLOGICAL EVENT</b>	
<b>ACTIONS BY THE CPs</b>	<b>ACTIONS BY THE IEC</b>
<i>Response time objective:</i> As suggested in Section 2.2.7.	
<p>CA(D) sends the notification/initial advisory message to the IEC's primary emergency fax/email on EMERCON SRF or submits the message to USIE, possibly with attachments and/or URL of its own website.</p> <p><b>Note:</b> If the event does not have any transboundary or transnational consequences, CA(D) may use the ENF.</p> <p>IRMIS Data Provider(s) upload(s) the monitoring data in IRMIS, if applicable.</p> <p>CA(D) calls the IEC on its primary emergency telephone to confirm receipt of the notification/advisory message.</p>	<p>Acknowledges the notification or initial advisory message on USIE.</p> <p>Calls the designated CA(D) of the reporting State on its primary emergency telephone to authenticate and verify the content of the notification/advisory message.</p> <p>Considers offering the IAEA's good offices to the reporting State.</p> <p>Considers activating a technical team to review the technical content of the notification/ advisory message using internal procedures and tools.</p> <p>Informs CPs (as determined by the notifying/reporting State) and relevant international organizations, as appropriate, of the message received.</p> <p>Respecting any confidentiality constraints or instructions from the reporting State, sends a copy of the initial message to CPs on their primary emergency fax/email if the event has transboundary or transnational consequences.</p> <p>Respecting any confidentiality constraints or instructions from the reporting State, publishes the initial message on USIE, including any attachments and/or link to the notifying State's website.</p> <p><b>Note:</b> If a dangerous source is found or detected that has been damaged, is stuck, was involved in fire, or has lost its shielding, information about the exact location of the source is withheld until the source has been made safe and secure.</p> <p><b>Note:</b> If a release to the atmosphere is involved, the IEC may inform WMO and request meteorological transport model predictions from the lead WMO RSMCs.</p>

**Notification or initial advisory message**

From notifying reporting State

<b>OTHER RADIOLOGICAL EVENT</b>	
<b>ACTIONS BY THE CPs</b>	<b>ACTIONS BY THE IEC</b>
	<p><b>Note:</b> If the event involves contamination of water, surfaces, people or commodities that may warrant urgent protective actions, or for which precautionary protective actions have been taken, the IEC may establish liaison with WHO (or, for the Americas, with PAHO) and FAO (as appropriate).</p> <p><b>Note:</b> If the event involves serious overexposures or requires medical treatment of persons, the IEC establishes liaison with WHO (or, for the Americas, with PAHO), and takes steps to protect patient confidentiality.</p>
<p><b>Further information exchange</b></p> <p>From notifying reporting State</p> <p>CA(D) sends further relevant information by fax or email on EMERCON SRF to the IEC’s primary emergency fax or email, or submits the form to USIE, possibly with attachments and/or URL of its own emergency website.</p> <p>IRMIS Data Provider(s) upload(s) the monitoring data in IRMIS, if applicable.</p> <p><b>Note:</b> If applicable, CA(A)/CA(D), through the Encrypted Information Publisher(s) designated in their organizations, sends encrypted information that may be relevant to other States.</p>	<p>If the event has transboundary or transnational consequences, the IEC distributes further information to CPs on their primary emergency fax/email according to the instructions of the notifying/reporting State, respecting confidentiality constraints as appropriate.</p>
<p>From potentially affected States</p> <p><i>State(s) from which information is requested</i></p> <p>CA(A) sends relevant information on EMERCON SRF to the IEC’s primary emergency fax or email, including the URL (if applicable) of the national emergency website providing the relevant information, or submits this information to USIE.</p> <p>IRMIS Data Provider(s) upload(s) the monitoring data in IRMIS, if applicable.</p>	<p>May request the CA(A)s of other States to provide information on radiation monitoring and protective actions using EMERCON SRF.</p> <p>Compiles information and sends a summary by fax to the CA(A) and the PMs of all States — in the case of notification — and publishes the information on USIE.</p> <p>Establishes links on USIE to other States’ emergency websites, providing relevant information.</p>
<p>Requests for information from other States</p> <p><i>State requesting information</i></p> <p>CAs may request information via message to the IEC’s primary emergency fax, email or telephone, or submits an EMERCON RFI to USIE.</p>	<p>Compiles requests and forwards them to the CA(D) of the notifying/reporting State or CA(A)s of other relevant States on their primary emergency fax/email.</p>

<b>OTHER RADIOLOGICAL EVENT</b>	
<b>ACTIONS BY THE CPs</b>	<b>ACTIONS BY THE IEC</b>
<i>State from which information is requested</i>	
The CA(D) of the notifying/reporting State or the CA(A)s of other relevant States send(s) replies to the IEC’s primary emergency fax/email or communicate answers to the IEC primary emergency telephone.	Distributes answers to requesting CPs on their primary emergency fax/email or communicates them to CPs on their primary emergency telephone and may publish the information on USIE.  <b>Note:</b> If several States requests the same type of information, or if there is a need to counteract false rumours, the IEC sends a message to the CA(A)s of all States on their primary emergency fax/email or publishes the information on USIE.
<b>Assessment and prognosis</b>	The CAs of the reporting State send relevant and available information to the IEC’s primary emergency fax/email or submit the information in an attachment to an EMERCON SRF for assessment and prognosis.  Compiles and analyses information, assesses the potential consequences and prognosis of the likely development of the event, discusses the results with the reporting State and publishes the information on USIE.  Acts as described in Section 4.4 of this manual.
<b>Provision of advice and assistance</b>	The CAs or the State’s PM may send a request for assistance to the IEC’s primary emergency fax or email using EMERCON RFA or submit the request to USIE (see Section 4.5 of this manual).  Acknowledges the request for assistance and verifies the content.  Assesses the request and provides initial advice to the requesting State.  May request CA(A)s of other relevant States (preferably States with registered RANET capabilities) and relevant international organizations to provide the requested assistance, respecting the instructions from the reporting State.
Arranging assistance	<i>Requesting and providing States</i>
	Review and revise the AAP and associated documents, as applicable, and sign off on them.
	<i>Requesting States</i>
Supports the implementation of assistance.	Drafts an AAP and associated documents as described in EPR-RANET 2018 [8] and provides them to all the involved CPs.  Facilitates and coordinates the implementation of assistance.

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<b>OTHER RADIOLOGICAL EVENT</b>		
	<b>ACTIONS BY THE CPs</b>	<b>ACTIONS BY THE IEC</b>
<b>Provision of public information</b>	<p>CA(D) sends copies of any press releases or URLs of relevant public websites to the IEC’s primary emergency fax/email or submits these to USIE.</p> <p>INES National Officer(s) of the reporting State may submit INES ERF(s) to USIE in coordination with the relevant CA.<sup>93</sup></p>	<p>Publishes press releases/URLs on USIE.</p> <p><b>IAEA:</b> May publish public statement(s) on the IAEA’s public website.</p>
<b>Inter-agency coordination</b>	<p>International organizations, in accordance with their mandates, may establish relevant links and communication channels with States (including respective national focal points), other competent organizations or agencies, regional centres and programmes.</p>	<p>May trigger the activation of the JPLAN.</p> <p>Acts as the focal point for the response coordination, if applicable.</p>
<b>Additional response actions</b> if the event is triggered, or suspected of being triggered, by nuclear security event(s)	<p>CA(A)/CA(D) and/or CAOC may use the EMERCON SRF on USIE to share encrypted information, such as sensitive and/or nuclear security related information, that may be relevant to other States. (The text provided in the ‘Other Relevant Information’ section of the EMERCON SRF can be encrypted to allow confidential information to be shared.)</p>	<p>Authenticates and verifies the message and contacts CA(A)/CA(D) and/or CAOC.</p> <p>May establish liaison with EUROPOL, INTERPOL and/or other relevant international organizations as per JPLAN and its provisions.<sup>94</sup></p> <p>May inform relevant CPs on their primary emergency fax/email.</p>
<b>Termination of event</b>	<p>The CA(D) sends information about the termination of the radiological event and the transition to an existing exposure situation or to a planned exposure situation to the IEC’s primary emergency fax/email using the EMERCON SRF or submits the form to USIE.</p> <p>The CA(D) calls the IEC on its primary emergency telephone to confirm receipt of the message.</p>	<p>Publishes the information on USIE.</p> <p>Informs all CPs on their primary emergency fax/email of the termination of the event.</p>

<sup>93</sup> The ERF is submitted when relevant information about the event is available and according to the national plan of using INES in emergencies. For more details, see Ref. [17].

<sup>94</sup> Respecting the instructions from the reporting State with due regard to the principle of protection of sensitive information.



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