EPR–IEComm

2019

ATTACHMENT 3

EMERGENCY PREPAREDNESS AND RESPONSE

International Radiological Information Exchange (IRIX) Format

Reference Description
IRIX Version 1.0

DATE EFFECTIVE: **20 FEBRUARY 2020**

IAEA
International Atomic Energy Agency

IAEA SAFETY STANDARDS AND RELATED PUBLICATIONS

IAEA SAFETY STANDARDS

Under the terms of Article III of its Statute, the IAEA is authorized to establish or adopt standards of safety for protection of health and minimization of danger to life and property, and to provide for the application of these standards.

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The site provides the texts in English of published and draft safety standards. The texts of safety standards issued in Arabic, Chinese, French, Russian and Spanish, the IAEA Safety Glossary and a status report for safety standards under development are also available. For further information, please contact the IAEA at: Vienna International Centre, PO Box 100, 1400 Vienna, Austria.

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The Agency's Statute was approved on 23 October 1956 by the Conference on the Statute of the IAEA held at United Nations Headquarters, New York; it entered into force on 29 July 1957. The Headquarters of the Agency are situated in Vienna. Its principal objective is "to accelerate and enlarge the contribution of atomic energy to peace, health and prosperity throughout the world''.

EPR-IEComm (2019) Attachment 3

INTERNATIONAL RADIOLOGICAL INFORMATION EXCHANGE (IRIX) FORMAT

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INTERNATIONAL ATOMIC ENERGY AGENCY
VIENNA, 2020

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For further information on this publication, please contact:

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Foreword

The Convention on Early Notification of a Nuclear Accident and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency 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 emergency, with the aim of minimizing the consequences. The IAEA has specific functions assigned to it under these conventions. The arrangements provided between the IAEA, the IAEA's Member States and/or Parties to one or both conventions, all other relevant international intergovernmental organizations (herein 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 (2019).

The International Radiological Information Exchange (IRIX) is an Extensible Markup Language (XML) information exchange format for the web based exchange of relevant emergency information and data among national and international organizations involved in the response to nuclear and radiological emergencies.

This publication is an attachment to EPR–IEComm (2019) and provides a reference description of the IRIX Format version 1.0. The publication includes the format's conceptual information structure and representation in XML.

The document draws on the work of the Work Groups and Expert Groups that were established under the International Action Plan for Strengthening the International Preparedness and Response System for Nuclear and Radiological Emergencies.

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 the Assistance in the Case of a Nuclear Accident or Radiological Emergency, the Parties to other Conventions under the IAEA auspices, of other relevant international organizations or of the Governments of other States.

Guidance provided in this publication, 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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Every effort has been made to ensure the accuracy of the information contained in this publicatrionl; however, neither the IAEA's Secretariat nor its Member States assume any responsibility for consequences that may arise from its use.

NOTES FOR THE USER

This publication is issued as an attachment to Operations Manual for Incident and Emergency Communication, EPR–IEComm (2019).

The publication is meant to serve as a reference for those organizations that are planning to develop emergency information exchange systems based on the International Radiological Information Exchange (IRIX) Format. It provides a reference for the information analysts who are to map the information and data models used internally in national and international organizations onto the IRIX Format structure, and for the software developers who will develop or extend existing information systems to be used for exchanging information with other organizations using the IRIX Format. Companies producing radiation monitoring equipment may use the publication as reference in the development of IRIX native or IRIX compatible data output, which will readily allow integration with the IAEA's International Radiation Monitoring Information System (IRMIS), which provides a mechanism for the global exchange of radiation monitoring data in emergencies and makes these data available to IAEA Member States.

The IAEA's Incident and Emergency Centre (IEC) is ready to provide any clarification on the implementation of the arrangements described in this publication and may be contacted at:

email: **IEC-Routine@iaea.org**

fax: **+43 1 2600 7 29309**

telephone: **+43 1 2600 22026 (or 22745 or 21418 as backup)**

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Section 1

1. INTRODUCTION

1.1. Purpose

The objective of this publication is to provide:

— A reference description of the International Radiological Information Exchange (IRIX) Format version 1.0;

— A detailed description of the information structure and its representation in the Extensible Markup Language (XML) [1].

1.2. Scope

This attachment describes the IRIX Format, which defines an information structure and machine readable format in XML for carrying the different types of information and data that are of relevance to response organizations when responding to nuclear or radiological emergencies.

This document does not discuss the rationale behind the inclusion or exclusion of particular information structures or items in the IRIX Format.

1.3. Structure

The document is structured in four parts:

— Section 1 provides the purpose, scope and structure of the document.

— Section 2 provides an overview description of the IRIX Format and explains various sections of the format and their use.

— Section 3 provides a listing of all the elements of the format with a brief description of each element.

— Section 4 contains the value lists that are used in many places in the format.

In addition, Appendix I contains information about the XML Schemas, which provide the most detailed definition of the IRIX Format and which are not otherwise contained in this publication. Appendix II contains several examples illustrating the use of the IRIX Format.

Section 2

2. OVERVIEW DESCRIPTION OF THE IRIX FORMAT

2.1. Background

In 1992, the IAEA published a document entitled Guidance on International Exchange of Information and Data Following a Major Nuclear Accident or Radiological Emergency [2]. The document, which described arrangements that needed to be established to provide for an effective exchange of post-accident data under the Convention on Early Notification of a Nuclear Accident [3], also defined a data structure referred to as the 'convention information structure' for use in the initial notification and the follow-up reporting of urgent information in the first few days of an accident. An associated data format for encoding information in the structure was also defined and subsequently used in the development of international notification systems, including the IAEA's Emergency Convention (EMERCON) system and the European Community Urgent Radiological Information Exchange (ECURIE) system.

In 2000, the IAEA issued a major revision of its Emergency Notification and Assistance Technical Operations Manual [4] and, along with that manual, a new suite of reporting forms to use for international notification and information exchange under the Convention on Early Notification of a Nuclear Accident. These forms were based on a simplified information structure compared with that of the convention information structure and were adopted as the standard forms to use, not only in the IAEA's EMERCON system but also in many countries' bilateral and multilateral information exchange arrangements.

In 2003 the General Conference in its resolution GC(47)/RES/7 supported the Secretariat's intention to develop, with the National Competent Authorities' Co-ordinating Group, a plan of action for enhancing the international emergency response system. In addition, the General Conference urged Member States to make necessary contributions to this work.

In 2004, following a second meeting in 2003 of representatives of competent authorities identified under the Convention on Early Notification of a Nuclear Accident [3] and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency [5], the IAEA and its Member States initiated the implementation of the International Action Plan for Strengthening the International Preparedness and Response System for Nuclear and Radiological Emergencies (the 'action plan').

Two of the issues that the action plan set out to address were (a) the need to create a standard data format that would enhance and replace existing formats, including the convention information

structure still in use in the ECURIE system and the IAEA's EMERCON report format, and (b) new information requirements identified by different expert groups. A group of experts drafted an initial version of a new format, and it was given the name the International Radiological Information Exchange Format, or 'the IRIX Format' for short. In 2009, when the action plan concluded, a draft version of the IRIX Format had been developed.

In 2010 the IAEA's Incident and Emergency Centre established the IRIX Steering Committee, tasked to advise on finalizing, maintaining and further developing the IRIX Format.

2.2. Objective of IRIX

The objective of IRIX is to enable national and international organizations to develop interoperable systems for exchanging emergency information and data by providing a common international standard information exchange format. Through the adoption of the IRIX Format as a standard format, the compilation, exchange and processing of emergency information and data should not be impeded by the need to convert and transcribe information between different representations and formats that may otherwise be required if the organizations involved were using different formats.

The IRIX Format is an information exchange format designed to facilitate the web based exchange of relevant emergency information and data among national and international organizations that are involved in the response to nuclear and radiological emergencies, in particular the exchange of emergency information among national and international organizations that have responsibilities assigned under the Convention on Early Notification of a Nuclear Accident.

2.3. Concept of IRIX

A principal concept in the IRIX Format is the IRIX report. Any information exchanged in the IRIX Format must be packaged as the IRIX report.

The IRIX report represents a message containing emergency related information and data, and/or requests for such information or data, sent from one organization to one or more other organizations. The IRIX report encompasses information such as basic information about the event (date and time of event, location, etc.), information about the status of the nuclear facility or radiation source involved, information about any releases of radioactive material to the environment, information on protective actions taken or planned to protect the public, and radiological monitoring data. The report covers information that is of immediate use to authorities for taking decisions on protective actions for the public, but also more detailed information and data that can be used for improving the assessment of the emergency situation and the subsequent decision making. The IRIX report structure supports the key categories of information to be exchanged internationally under the terms of the Convention on Early Notification of a Nuclear Accident. The use of the IRIX Format is, however, not limited to this application.

2.4. The report structure

2.4.1. Composition of the report and its sections

The IRIX report has a set of metadata associated with it, including the name of the organization issuing the report, the date and time when the report was created, a unique identifier of the report, and so on. The metadata is contained in the *Identification* section, which is the only mandatory element of the IRIX report. In addition to the *Identification* section, the IRIX report may contain a

number of content sections. The content sections allow the inclusion of content of different types in the report. A total of 11 content sections have been defined in the IRIX Format.

Nine of the content sections represent the main class of content sections defined in the IRIX Format: the report sections. The report sections allow the inclusion of structured and semi-structured information on specific subjects of interest. The nine report sections are:

(a) *Event Information* section;
(b) *Release Information* section;
(c) *Meteorology* section;
(d) *Consequences* section;
(e) *Response Actions* section;
(f) *Measurements* section;
(g) *Medical Information* section;
(h) *Media Information* section;
(i) *Locations* section.

Besides the report sections, there are two special content sections in the IRIX report: the *Requests* section and the *Annexes* section.

The *Requests* section allows the sending organization of the report to address requests for information to the recipient organizations of the report. The *Requests* section can also be used to return responses to such requests for information.

The *Annexes* section allows the inclusion of additional information in the form of attached files, or as free text annotations associated with any of the information sections or subjects of the report, and also cryptographic signatures.

A schematic overview of the report structure of the IRIX Format is provided in Fig. 1.

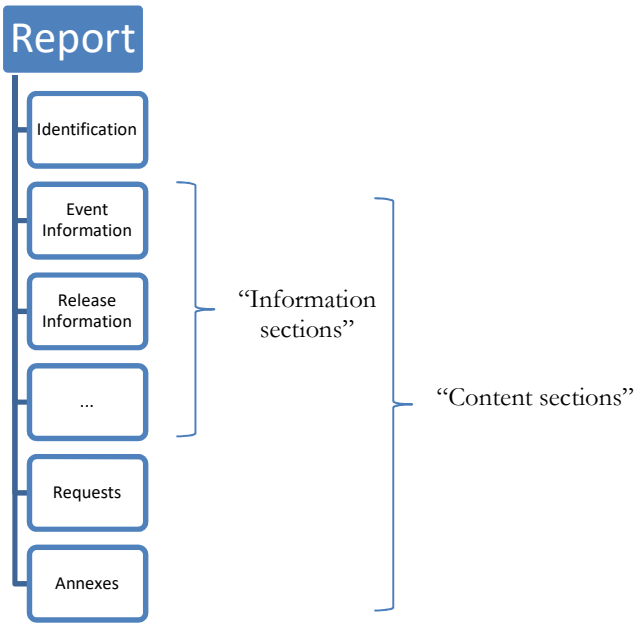

FIG. 1. Schematic overview of the IRIX report structure.

2.4.2. The *Identification* section

The *Identification* section contains information about the report. There is some information in the *Identification* section that is required in every report; this includes:

(a) The name of the organization issuing the report;

(b) The date and time when the report was created;

(c) An indication as to whether the report is issued in connection with an actual event, is sent as a routine report (e.g. containing routine radiation monitoring data), or is connected to an exercise event or a test;

(d) A globally unique identification number of the report, as assigned by the issuing organization.

The globally unique report identification number allows organizations that participate in the information exchange to make references to a particular report as well as to identify duplicate copies of a report when received through different routes.

Optional information that may be included in the *Identification* section includes:

(a) References to previously issued reports for which this report provides an update or which this report revokes/replaces;

(b) A report sequence number for indicating the sequential order of the report within a series of reports issued for a particular event;

(c) A confidentiality marking that indicates whether the information in the report may be disclosed and shared with the public or may be circulated for authority use only;

(d) A list of recipient organizations to which the report is addressed;

(e) References to reporting requirements under which the report is provided. A predefined value is the Convention on Early Notification of a Nuclear Accident. References to other reporting requirements may also be included.

(f) Name and contact details of a contact person for the information provided in the report, as well as the address to a web site where further information is made available;

(g) References to one or more identifiers of the event to which the report relates. The referenced event identifier may belong to either the reporting organization or to some other (e.g. international) organization.

2.4.3. The *Event Information* section

The *Event Information* section is used in the context of an event to provide basic information about the event, including information that is usually static in nature (e.g. time, location and nature of the event) and information that is usually dynamic (e.g. the current emergency class declared at a nuclear installation).

Required information in the *Event Information* section is as follows:

(a) The type of the event (a list of predefined event types is provided in the format);

(b) The date and time of occurrence of the event;

(c) The location of the event (e.g. name of place/facility and geographical coordinates).

The *Event Information* section may also be used to provide the following information:

(a) A brief free text description of the event.

(b) Information on the object or facility involved. For an event involving a nuclear reactor, the type and power of the reactor may be provided. For an event involving one or more radioactive sources, nuclides and activity contained in the source(s) may be provided.

(c) The status and trend in conditions at the nuclear installation involved (if applicable). The information may include the status of reactor criticality (e.g. whether it is continuing, stopped or unknown) and whether severe fuel damage has occurred.

(d) The emergency class declared at a nuclear installation (if applicable), including time and basis for the declaration.

(e) The International Nuclear and Radiological Event Scale (INES) rating, including date and justification of the rating.

The *Event Information* section is only meant to be provided by the organization that is reporting on an event occurring under its own jurisdiction. Organizations that provide reports relating to an event occurring under another jurisdiction (e.g. concerning the transboundary consequences of the event) are not meant to include this section in their own reports.

2.4.4. The *Release Information* section

The *Release Information* section is used for providing relevant information about any actual or projected release(s) of radioactive material into the environment.

The section has two subsections. The first subsection allows the provision of a simple indication of whether a release has occurred, is likely to occur or is unlikely to occur. The second subsection allows the provision of more detailed information about any actual and/or projected release(s). IRIX uses the concept of 'release phases'. Multiple releases from a source occurring at different times or via different routes through an installation may be described as different release phases, each with its own information on the start and end time of the release, nuclides released, and so on. Where it is deemed more appropriate to provide an aggregate description of the release, whether occurring as one or more phases, this approach is also possible. In either case, a release phase in IRIX describes either actual release(s) or projected release(s), not a combination of the two.

For each release phase described in the second subsection, the following information may be provided:

(a) Whether the information relates to an actual or projected release;

(b) Whether the release is to atmosphere or to a water body;

(c) For a projected release, the likelihood of its occurrence;

(d) The start and end time of the release;

(e) The release route;

(f) The estimated activity for each nuclide or combination of nuclides released or to be released;

(g) Whether the release is chemically toxic (e.g. major release of uranium hexafluoride);

(h) For a release to the atmosphere:

- The estimated height of the release, including base height (stack height), top height and effective height of the plume;
- Whether the release is gaseous or particulate (or both);
- The main transport direction (i.e. direction headed) and estimated transport speed in the main direction (particularly relevant if meteorological measurements cannot be considered characteristic of the overlying meteorological situation, such as at coastal or valley sites);
- For a release of iodine, the relative fractions of iodine in elementary, organically bound and aerosol form released;
- Whether the release is accompanied by a significant emission of heat.

(i) For a release to water: the name of the water body affected;

(j) A free text description of the characteristics of the release.

2.4.5. The *Meteorology* section

The *Meteorology* section is used to provide information on local meteorological conditions (observed, projected or forecasted) at specific geographical locations and time periods of interest. The information may be provided to help assess the local dispersion conditions for an atmospheric release of radioactive material or to supplement radiological environmental monitoring data (e.g. measured dose rate levels in the environment). The section is not meant to be used for providing information on the overlying meteorological situation[1].

Several meteorological data records valid for different locations, altitudes and/or time periods may be provided, each record containing information on weather parameters, such as:

(a) Whether the data reflects observed, projected or forecasted weather;
(b) Wind direction and speed (and fluctuation);
(c) Precipitation (form, amount and/or average intensity for the indicated time period);
(d) Air temperature;
(e) Atmospheric pressure;
(f) Cloud cover;
(g) Dew-point temperature;
(h) Temperature inversion layer height;
(i) Solar radiation;
(j) Relative humidity;
(k) Pasquill stability class;
(l) World Meteorological Organization weather code.

In addition to the above parameters, each weather data record may include a free text description of the weather for the specified location and time period.

2.4.6. The *Consequences* section

The *Consequences* section is used for providing information on the consequences of an event. The section has three subsections.

[1] Such information may, however, be provided in the *Annexes* section of the report structure.

The first subsection allows the provision of a listing of areas that are affected, or projected to be affected, at a specified time. For each area listed, a description of the type of effect may be provided, along with an indication as to whether the effect has been confirmed, or for a projected effect, whether it is likely to occur. The information is primarily meant to describe radiological effects, such as contamination or elevated radiation levels, in the listed areas.

The second subsection allows the provision of information on the numbers of casualties after an event. The information may be provided with different levels of detail. For example, total numbers may be provided and broken down by different types of casualties (e.g. exposed to radiation, hospitalized, wounded, dead) and/or for different groups of people (e.g. members of public, emergency services).

The third subsection allows the provision of free text descriptions of radiological issues related to public health, foodstuff and the environment, after an event.

2.4.7. The *Response Actions* section

The *Response Actions* section is used for providing information on response actions taken or planned in the response to an event. The section has two subsections.

The first subsection allows the provision of information on protective actions taken to protect the public in an emergency, including access restrictions, sheltering, evacuation, administration of stable iodine prophylaxis, and restrictions on the consumption of foods or water. The section allows a quick indication to be provided of whether any protective actions have been taken or planned, along with a more detailed tabulation of the different protective actions and their status of implementation. The following types of tabulations are possible:

(a) Tabulation by type of protective action and geographical area;

(b) Tabulation by type of protective action only.

The former representation allows the provision of a detailed 'map' of the status of protective actions in different geographical areas, where each table record may have the following information: type of protective action, geographical area concerned (e.g. area sector or other polygon described by picture or text), status of implementation, beginning and end time of the protective action (where relevant).

In the latter representation, an aggregate description of the implementation of different types of protective action may be provided, including geographical areas concerned (described by text or farthest distance away from the event location), overall status of implementation (taking all concerned areas into account), and beginning and end time of the type of protective action (where relevant).

Independent of the representation chosen in a report, the information provided is assumed to describe the full picture of the protective actions taken or planned within the jurisdiction with which the report is concerned.

For protective actions recommended for its nationals located in foreign countries, the countries concerned may be indicated clearly.

The second subsection allows the provision of a free text description of response actions taken or planned by relevant response organizations within the relevant jurisdiction. The information need not be limited to protective actions.

2.4.8. The *Measurements* section

The *Measurements* section is used for reporting environmental radiological monitoring data (e.g. gamma dose rate levels and nuclide concentrations in different media or substances, such as air, deposition, river water, drinking water and food). The section is exclusively meant to be used for reporting data derived from actual measurements, not results of computer model predictions.

The section hosts two different data structures, optimized for reporting different types of measurement data:

(a) The dose rate structure, optimized for reporting dose rate measurements from monitoring station networks;

(b) The sample structure, optimized for reporting nuclide measurements in sampled substances.

The structure for dose rate measurements allows the provision of information such as:

(a) Type of dose rate measured (e.g. gamma, beta, or gamma and beta);

(b) Time of measurement;

(c) Location of measurement;

(d) Measurement value and unit (Sv/h);

(e) Supplementary details, such as type of measurement apparatus used.

The structure for sample type measurements allows the provision of information such as:

(a) Type of medium or substance sampled;

(b) Sampling location;

(c) Sampling time/period;

(d) Nuclide or nuclides measured;

(e) Measurement value and unit (e.g. Bq/m^3, Bq/L);

(f) Measurement date, and/or reference date (where decay correction needs to be taken into account);

(g) Whether the reported value represents a single discrete measurement value, or is an aggregate value (e.g. spatial or temporal minimum, maximum, or average value) derived from a collection of measurement values;

(h) Supplementary details, such as sampling depth (e.g. for soil samples), surface type description, sampling volume (e.g. for air samples), type of sample treatment, or name of measurement laboratory.

For any type of measurement, the following information may also be provided:

(a) Uncertainty of the measurement value;

(b) The reference or background value;

(c) Whether the measurement value has been validated (i.e. quality checked).

2.4.9. The *Medical Information* section

The *Medical Information* section is used for providing information on the results of medical assessments of individuals who have been exposed, or are suspected of having been exposed, to radiation in an event.

The section allows the provision of medical information regarding any number of individuals, whose identity may or may not be disclosed. The medical information may include:

(a) Estimated dose (e.g. whole body dose, thyroid dose);

(b) Diagnosed health effects (e.g. acute radiation syndrome, bone marrow depression);

(c) Prognosticated health consequences (e.g. amputation, contracture, fatality).

2.4.10. The *Media Information* section

The *Media Information* section is used for providing information related to the management of media and public communication during an event. The section allows the provision of contact details of officials responsible for the coordination of the release of information to the media and the public, and the web address of a main public web site on which such information is made publicly available.

2.4.11. The *Locations* section

The *Locations* section is used for providing descriptions of one or more geographical locations of interest, which may be referenced in other sections of the report (e.g. the *Measurements* section). A location description may include the name of the location (e.g. name of the city, town or facility); geographical coordinates; name of the containing municipality, administrative unit, region, and country; and a free text description.

2.4.12. The *Requests* section

The *Requests* section is used for including requests for information and/or requests for clarifications addressed to the recipient organization(s) of a report. The same section may also be used by the requested organization(s) for providing answers and clarifications back from the requested organization to the requesting organization.
Each request is constituted by a request subject, a summary description of the requested information and a unique reference number. A response is constituted by a reference to the relevant request, a summary response text and a unique reference number.

2.4.13. The *Annexes* section

The *Annexes* section is used for including the following types of information in a report:

(a) File attachments;

(b) Annotations;

(c) Cryptographic signatures.

File attachments may contain any type of relevant information (e.g. more detailed information than that which may be provided in the information sections of the report). File attachments may be any type of file, including text files, binary files and even IRIX reports. Each file attachment may be provided along with some document metadata, such as file name, content type, author organization, date of validity, and confidentiality.

Annotations provide a means of including additional information or remarks in the form of free text in the report. An annotation consists of a brief text and an optional title.

The inclusion of one or more cryptographic signatures enables recipients to verify the authenticity and integrity of the information contained in the report.

2.4.14. General features of the information sections

This section describes some general features of the information sections of the IRIX Format.

2.4.14.1. Value lists

A key requirement in exchange of emergency information is the ability to report and provide information in as clear, concise and unambiguous a way as possible. Since the IRIX Format is intended to be used in international information exchange, key information should also be represented in a way that is language independent to the largest extent possible. For these reasons, many information fields in the IRIX Format accept standard values from predefined value lists. However, in order not to constrain the information that may be provided in such fields, many of these fields also allow for a free text value.

2.4.14.2. Time of validity

The information contained in the IRIX report may provide a situation description that was valid at a point in time different from the time at which the report was created or issued. Furthermore, each information section may contain information that was valid at a different point in time than the information in the other sections. In order for it to be clear at what time the information in an information section was valid, many of the information sections have a required attribute in which the time of validity of the information contained within that section is specified.

2.4.14.3. Canonical representations

The format has been designed to allow little variability in the way information may be represented, making the development of applications that consume the information reported in the IRIX Format easier. For example, in the IRIX Format, physical quantities must be given in SI units only and, in general, without a unit prefix (e.g. kilo, micro). Time declarations must be given in the UTC time zone. Geographical coordinates must be given in the WGS84 projection, and so forth. In this way, applications need not know about all the different existing unit systems, time zones, and coordinate reference systems, and how to convert between them. They only need to know how to convert between the representation used in the IRIX Format and the one used within the application, and as a result should be easier to develop.

2.4.14.4. Extensibility

It is common in some types of data formats to provide an extensibility feature that allows the inclusion of custom data fields, which are not defined as part of the format. In IRIX, this approach is generally not supported, in particular in the information sections, so as to guarantee that any recipient of the IRIX report knows how to interpret all the information contained in the report.

At a limited number of locations in the IRIX Format, however, extension fields are allowed, primarily to allow the provision of additional metadata for information objects contained in the report. Such fields may be used to enhance the processing of the information contained in a report but may not alter or augment the information set contained in the report. In general, a sender of the IRIX report must not assume that the receiver or receivers will or can process the information in the extension fields.

Section 3 indicates which elements in the format accept extension fields.

2.5. Use of XML in the IRIX Format

The IRIX Format uses XML for representation of the IRIX report and its content in a machine - readable format and for transmission over wire. Although the detailed description of the IRIX Format is defined in the IRIX XML Schemas (see below), this section describes some general features of the IRIX Format.

2.5.1. Information about the use of XML

XML is a markup language that is used in a variety of applications to represent both structured and semi-structured information and allows information to be encoded in a format that is often human readable and machine readable at the same time. XML naturally represents treelike information structures, such as the different sections and subsections of the IRIX report, and also tabular and relational data. XML is also a suitable format for international application since it is independent of any software platform and also supports Unicode (the international text encoding standard). A large number of tools and standards exist for working with information in XML, including tools for reading, writing, querying, transforming and presenting information represented in XML.

Although the IRIX Format has been primarily designed to allow for easy parsing by software, readability by humans has also been taken into account. XML is a textual format that can be read and edited using a normal text editor, and this feature can be an advantage in some scenarios. To this end, the element names and values in the IRIX Format have been chosen to be as self-describing as possible, requiring little use of code translation tables and so on. This may result in an increase in the size of the report but should, however, not be an issue since XML may be compressed before transmitting over the wire. Moreover, the IRIX Format is not meant to be used for exchanging huge sets of information (e.g. huge measurement data sets), where computer memory requirements for processing the contents could become an issue.

2.5.2. The IRIX XML namespaces

The use of namespaces in XML is a common way of ensuring that elements in XML documents have unambiguous names. These namespaces are of particular importance in applications that involve the processing of XML documents of different types (i.e. using different XML 'vocabularies') or of different versions of a format definition. The elements in the IRIX Format version 1.0 have names that are defined in the following XML namespaces:

- http://www.iaea.org/2012/IRIX/Format
- http://www.iaea.org/2012/IRIX/Format/<Report Section Name>

2.5.3. Version information

The version number of the IRIX Format described in this document is 1.0 (i.e. major version number 1; minor version number 0).

New versions of the IRIX Format may be issued in the future, and it is therefore necessary to indicate clearly in a report the version of the format being used. In the IRIX Format, the version number is indicated by an attribute on the root element of the IRIX XML document.

Minor changes in the format, such as extending value lists with additional values, or adding one or a few elements to the existing structures, would be issued under an increment of the minor version of the format. More significant changes would be issued under a new major version. Applications

that are built on a later version of the format should be able to easily handle reports that have the same major version but a lower minor version of the format.

A new major version of the format may also warrant the use of a new XML namespace.

2.5.4. XML Schemas

An important feature of XML is that the structure and format of an XML document may be precisely described with a schema against which instance reports may be automatically validated. The use of a common schema for validating a received IRIX report can make information exchange between independently developed applications more robust.

Information about the IRIX XML Schemas is included in Appendix I of this document. Any application that produces or consumes information in the IRIX Format should use these schemas to make sure that the IRIX reports exchanged conform to all the rules of the format before they are processed. An XML document that is not valid according to the IRIX XML Schemas is not a valid IRIX report.

Section 3

3. ELEMENTS OF THE IRIX FORMAT

This section provides a comprehensive listing of all elements of the IRIX Format, with brief descriptions of their meaning and use. The elements are listed by report section. For each element, its relative position, its name, whether it is a required element or not, its number of possible occurrences and its type of information content is listed. The tables used to list the elements have the following columns:

No.	Relative position number of an element within a section of the IRIX Format. The position numbers also indicate parent–child relationships between elements. For example, an element with the position number '1.1' is the first child element of the first element that may occur in a section.
Element name	The XML name of the element in the IRIX Format. An element name starting with the '@' character indicates that the element is represented by an element attribute rather than an element in the XML format. An element name ending with '[]' indicates that the element may have multiple occurrences. An asterisk symbol (*) indicates that any (non-IRIX) element may be used in this position (cf. 'Extensibility' in Section 2).
Description	A brief description of the information contained in the element.
Req'd.	Indicates whether the element is required to be present in a report. Possible values: 'R' (required when parent element present), 'R*' (conditionally required when parent element present), and 'O' (optional).
Mult.	Indicates the number of allowed occurrences of the element. Possible values are: 'N' (no multiple occurrence), 'Y' (one or more occurrences; see Appendix I for details).
Type	Indicates the type of content of the element. Possible values: 'Container' (a group of child elements); 'String' and specialized types of strings; 'Text'; 'HTML'; 'Number' and specialized types of numbers; '{ … }' (value from predefined list); and 'List of…' (list, space separated, of values of indicated type).
Note	Any additional information regarding the element.

Note that:

(a) Whereas this section provides a detailed listing of the elements of the format and their properties, the XML Schema referred to in Appendix I generally contains more precise specification of the structure and properties of the elements of the IRIX Format.

(b) Element (or element attributes) with a fixed value are not included in the listings in this section.

3.1. The Report element

The Report element is the root element of the IRIX report. A full listing of the elements of the Report element is provided in Table 1 below.

TABLE 1. ELEMENTS OF THE REPORT ELEMENT

No.	Element name	Description	Req'd.	Mult.	Type	Note
1	@version	Identifies version of the IRIX Format used	R	N	String	Fixed, and defaulting, to '1.0'
2	Identification	Contains information about the report	R	N	Container	See 3.2
3	EventInformation	Contains information about the event	O	N	Container	See 3.3
4	Release	Contains information about radioactive release	O	N	Container	See 3.4
5	Meteorology	Contains information about weather conditions	O	N	Container	See 3.5
6	Consequences	Contains information about event consequences	O	N	Container	See 3.6
7	ResponseActions	Contains information about response actions	O	N	Container	See 3.7
8	Measurements	Contains measurement data	O	N	Container	See 3.8
9	MedicalInformation	Contains information related to medical response	O	N	Container	See 3.9
10	MediaInformation	Contains information related to media/public communication	O	N	Container	See 3.10
11	Locations	Contains information on geographical locations of interest	O	N	Container	See 3.11
12	Requests	Contains requests for information and responses	O	N	Container	See 3.12
13	Annexes	Contains annex type information (e.g. file enclosures, annotations, digital signatures)	O	N	Container	See 3.13

3.2. The *Identification* section

The *Identification* section is a mandatory section of the IRIX report. A full listing of the elements of the *Identification* section is provided in Table 2 below.

TABLE 2. ELEMENTS OF THE *IDENTIFICATION* SECTION

No.	Element name	Description	Req'd.	Mult.	Type	Note
1	OrganisationReporting	Identifier (domain name) of the organization issuing this report	R	N	Internet domain name string	The string must have the format of an Internet domain name but need not be a registered domain name on the Internet
2	DateAndTimeOfCreation	Date and time at which this report was created	R	N	Date–time string	
3	ReportContext	The type of 'context' in which this report was created	R	N	{ Emergency | Routine | Exercise | Test }	
4	SequenceNumber	Sequence number of this report	O	N	Positive integer number	The sequence number indicates the order of the report within a series of reports issued by an organization in connection with a particular event; it is normally '1' for the initial report
5	ReportUUID	Unique identifier of this report	R	N	UUIDv4 string	An identifier for the set of information contained in the report, independent of the format or representation in which the information is provided

No.	Element name	Description	Req'd.	Mult.	Type	Note
6	Follows	Reference to the unique identifier (ReportUUID) of a previous report, for which this report provides the next update	O	N	UUIDv4 string	
7	Revokes	Reference to the unique identifier (ReportUUID) of a previous report that is being revoked or replaced by this report	O	N	UUIDv4 string	
8	Confidentiality	Confidentiality of the information contained in this report	O	N	{ ... }	See Section 4
9	Addressees	List of organizations to which this report is addressed	O	N	Container	
9.1	Addressee[]	Identifier of an organization to which this report is addressed	R	Y	Internet domain name string	
10	ReportingBases	List of reporting requirements under which this report is issued	O	N	Container	
10.1	ReportingBasis[]	Descriptor of a reporting requirement under which this report is issued	R	Y	Text	
11	ContactPerson	Identifier of a contact person for this report	O	N	Email address string	
12	AdditionalInformationURL	Web address of web site on which additional information is available	O	N	URL string	
13	EventIdentifications	List of event identifiers for the events with which this report is associated	O	N	Container	The list may include both the event identifier assigned by the reporting organization and event identifiers assigned by other organizations as known to the reporting organization
13.1	EventIdentification[]	Identifier of an event with which this report is associated	R	Y	Text	
13.1.1	@Organisation	Identifier of the organization to which the event identifier belongs (if different from the reporting organization)	O	N	Internet domain name string	

No.	Element name	Description	Req'd.	Mult.	Type	Note
14	Identifications	List of contact information for the reporting organization, for any addressed organizations and for the contact person for this report	R	N	Container	
14.1	PersonContactInfo[]	Contact information of the contact person for this report	O	Y	Container	
14.1.1	Name	Name of person or contact	R	N	Text	
14.1.2	UserID	An identifier of the person	O	N	Email address string	
14.1.3	Position	The position or function of the person in his or her organization	O	N	Text	
14.1.4	OrganisationID	A reference to the identifier of the organization to which the person belongs; the contact details of the organization may or may not be included in the report	O	N	Internet domain name string	
14.1.5	PhoneNumber	Phone number of the contact	O	N	Phone number string	
14.1.6	FaxNumber	Fax number of the contact	O	N	Phone number string	
14.1.7	EmailAddress	Email address of the contact	O	N	Text	
14.1.8	Description	Additional contact information	O	N	HTML	
14.2	OrganisationContactInfo[]	Contact information of the reporting organization, and any addressed organizations, of the report	R	Y	Container	
14.2.1	Name	The name of the organization	R	N	Text	
14.2.2	OrganisationID	The identification string of the organization	R	N	Internet domain name string	
14.2.3	Country	The country to which the organization belongs	R	N	Country code (ISO 3166 alpha-2)	
14.2.4	WebAddress	Address to the public web site of the organization	O	N	URL string	
14.2.5	Address[]	Visiting and/or postal address of the organization	O	Y	Container	
14.2.5.1	@Type	Type of the address (visiting or mailing)	R	N	{Visiting Address | Postal Address}	
14.2.5.2	Postbox	Postbox number	O	N	Text	

No.	Element name	Description	Req'd.	Mult.	Type	Note
14.2.5.3	Street	Street address	O	N	Text	
14.2.5.4	PostalCode	Postal or ZIP code	R	N	Text	
14.2.5.5	Municipality	Municipality name	R	N	Text	
14.2.5.6	Country	Country	R	N	Country code (ISO 3166 alpha-2)	
14.2.6	PhoneNumber	Phone number of the contact	O	N	Phone number string	
14.2.7	FaxNumber	Fax number of the contact	O	N	Phone number string	
14.2.8	EmailAddress	Email address of the contact	O	N	Text	
14.2.9	Description	Additional contact information	O	N	HTML	
15	*[]	Additional report header information	O	Y	Any extension element	

Note: HTML: Hypertext Markup Language; ISO: International Organization for Standardization; UUID: universally unique identifier.

3.3. The *Event Information* section

A full listing of the elements of the *Event Information* section is provided in Table 3 below.

TABLE 3. ELEMENTS OF THE *EVENT INFORMATION* SECTION

No.	Element name	Description	Req'd.	Mult.	Type	Note
1	@ValidAt	Date and time at which the information contained in this report section was valid	R	N	Date–time string	
2	TypeOfEvent	The type of event	R	N	{ ... }	See Section 4
3	TypeOfEventDescription	The type of event (free text)	O	N	Text	
4	DateAndTimeOfEvent	The date and time of occurrence of the event	R	N	Date–time string	
4.1	@IsEstimate	Optional indicator for whether the specified date and time of the event is only an estimate	O	N	{ Yes | No }	

No.	Element name	Description	Req'd.	Mult.	Type	Note
5	Location	Information on the location of the event; for events involving a fixed object (e.g. an installation) the location can also be provided under ObjectInvolved	R	N	Container	For the structure of this element, see *Locations* section (3.11)
6	ObjectInvolved	Information on the object involved in the event (e.g. installation, source)	O	N	Container	
6.1	TypeOfObjectOrActivity	The type of object or activity involved	R*	N	{ ... }	See Section 4
6.2	TypeOfObjectOrActivityDescription	The type of object or activity involved (free text)	R*	N	Text	
6.3	Name	Name of the object (e.g. installation, source) involved	R	N	Text	
6.4	Location	Information on the location of the object (e.g. installation, source) involved	O	N	Container	For the structure of this element, see *Locations* section (3.11)
6.5	SourceCharacteristics	Information on any radioactive sources involved	O	N	Container	
6.5.1	Source[]	Information on a radioactive source involved	R	Y	Container	
6.5.1.1	Sealed	Flag indicating whether the source is sealed	O	N	{ Yes | No | Unknown }	
6.5.1.2	Shielded	Flag indicating whether the source is shielded	O	N	{ Yes | No | Unknown }	
6.5.1.3	Nuclides	A list of nuclides that the source contains, along with their activity; the activity can be given per nuclide or per group of nuclides	R	N	Container	
6.5.1.3.1	Nuclide[]	Information on the activity of a nuclide–nuclide combination contained in the source	R	Y	Container	
6.5.1.3.1.1	Nuclide	A nuclide	R*	N	Nuclide symbol	
6.5.1.3.1.2	NuclideList	A list of nuclides	R*	N	List of nuclide symbols	
6.5.1.3.1.3	NuclideCombination	A nuclide combination	R*	N	{ ... }	See Section 4

No.	Element name	Description	Req'd.	Mult.	Type	Note
6.5.1.3.1.4	NuclideDescription	A nuclide– nuclide combination (free text)	R*	N	Text	
6.5.1.3.1.5	Activity	Activity (Bq) of the nuclide contained in the source	O	N	Floating point number	
6.5.1.3.1.6	ReferenceDateAndTime	Date and time at which the activity specified is/was valid	O	N	Date–time string	
6.5.1.4	Description	Additional free text information about the radioactive source involved	O	N	HTML	
6.6	ReactorCharacteristics	Information on the reactor involved, if applicable	O	N	Container	
6.6.1	TypeOfReactor	The type of the reactor involved	O	N	{ ... }	See Section 4
6.6.2	TypeOfReactorDescription	The type of the reactor involved (free text)	O	N	Text	
6.6.3	ThermalPower	The thermal power of the reactor (MW)	O	N	Decimal number	
6.6.4	ElectricalPower	The electrical power of the reactor (MW)	O	N	Decimal number	
6.6.5	Description	Additional free text information about the type or characteristics of the reactor involved	O	N	HTML	
6.7	Description	Additional free text information about the object (e.g. installation, source) involved	O	N	HTML	
7	EmergencyClassification	Information on the emergency class declared at the installation involved, if applicable	O	N	Container	
7.1	EmergencyClass	Emergency class declared	R*	N	{ ... }	See Section 4; class given in accordance with IAEA Safety Standards Series No. GSR Part 7, Preparedness and Response for a Nuclear or Radiological Emergency
7.2	EmergencyClassDescription	Emergency class declared (free text)	R*	N	Text	
7.3	DateAndTimeOfDeclaration	Date and time at which the emergency class was declared	O	N	Date–time string	
7.4	BasisForDeclaration	Free text description of the basis for the declaration of the emergency class	O	N	HTML	

No.	Element name	Description	Req'd.	Mult.	Type	Note
8	PlantStatus	Information on the current status of the installation or plant	O	N	Container	
8.1	CoreState	Information on the status of the reactor core, if applicable	O	N	Container	
8.1.1	Criticality	Information about criticality of the reactor	O	N	Container	
8.1.1.1	Status	Status of criticality	R	N	{ Stopped | Continuing | Unknown }	
8.1.1.2	StoppedAt	Date and time at which criticality stopped or is projected to stop	O	N	Date–time string	
8.1.2	SevereDamageToFuel	Information on actual or potential severe damage to fuel	O	N	Container	
8.1.2.1	Occurrence	Indicator of whether severe damage to fuel has occurred or is likely to occur	R	N	{Has Not Occurred, and Unlikely to Occur | Has Not Occurred, but Likely to Occur | Has Occurred | Unknown}	
8.1.2.2	TimeOfOccurrence	Date and time of actual or projected occurrence of severe damage to fuel	O	N	Date–time string	
8.1.3	Description	Additional free text information about the status of the reactor core	O	N	HTML	
8.2	SpentFuelState	Free text description of the status of spent fuel, if applicable	O	N	HTML	
8.3	TrendInConditions	The trend in the conditions at the plant	O	N	{Getting Better | Stable | Getting Worse | Unknown}	
8.4	Description	Additional free text information about the current status at the plant	O	N	HTML	
9	INESClassification	Information on the INES rating issued for the event	O	N	Container	

No.	Element name	Description	Req'd.	Mult.	Type	Note
9.1	INESLevel	The INES level assigned to the event	R	N	{ INES-0 | INES-1 | INES-2 | INES-3 | INES-4 | INES-5 | INES-6 | INES-7 | Not Applicable }	
9.2	StatusOfClassification	Status of the INES rating: 'Provisional' or 'Final'	R	N	{ Provisional | Final }	
9.3	DateAndTimeOfClassification	The date and time at which the INES rating was issued	O	N	Date–time string	
9.4	BasisForClassification	Free text description of the basis or justification of the INES rating	O	N	HTML	
10	EventDescription	A summary description or brief status report of the event	O	N	HTML	

Note: HTML: Hypertext Markup Language; INES: International Nuclear and Radiological Event Scale.

3.4. The *Release* section

A full listing of the elements of the *Release* section is provided in Table 4 below.

TABLE 4. ELEMENTS OF THE *RELEASE* SECTION

No.	Element name	Description	Req'd.	Mult.	Type	Note
1	@ValidAt	Date and time at which the information contained in this report section was valid	R	N	Date–time string	
2	ReleaseOccurrence	General information on the occurrence of a release to air, water or both	O	N	Container	
2.1	ActualRelease	General information on the occurrence of an actual release to air, water or both	R	N	Container	
2.1.1	Occurrence	Indicator of whether an actual release has occurred or not	R	N	{ Has Occurred | Has Not Occurred | Unknown }	
2.1.2	Compartment	Indicator of whether the release is/was to air, water or both	O	N	{ Air | Water | Air and Water }	

No.	Element name	Description	Req'd.	Mult.	Type	Note
2.1.3	Description	Additional free text information about actual release	O	N	HTML	
2.2	FutureRelease	General information on the likely occurrence of a future release to air, water or both	O	N	Container	
2.2.1	Occurrence	Indicator of whether a future release is likely to occur or not	R	N	{ Certain Not to Occur | Unlikely to Occur | Likely to Occur | Certain to Occur | Unknown }	
2.2.2	Compartment	Indicator of whether a likely release will be to air, water or both	O	N	{ Air | Water | Air and Water }	
2.2.3	Description	Additional free text information about projected release	O	N	HTML	
3	ReleaseToAir	Information on specific releases to the atmosphere	O	N	Container	
3.1	ReleasePhases	Information on a release to air	R	N	Container	
3.1.1	ReleasePhase[]	Information on a release to air	R	Y	Container	
3.1.1.1	Occurrence	Indicator of whether the release has actually occurred or is projected to occur	R	N	{ Actual | Projected | Projected — Likely to Occur | Projected — Unlikely to Occur | Projected — Certain to Occur }	
3.1.1.2	TimeOfRelease	Start and end time of the release (actual or projected)	O	N	Container	
3.1.1.2.1	StartTime	Start time of the release (actual or projected)	O	N	Date–time string	
3.1.1.2.2	EndTime	End time of the release (actual or projected)	O	N	Date–time string	
3.1.1.3	ReleaseRoute	Release route to atmosphere	O	N	{ ... }	See Section 4
3.1.1.4	ReleaseRouteDescription	Release route to atmosphere (free text)	O	N	Text	
3.1.1.5	ReleaseHeight	Height of the release	O	N	Container	
3.1.1.5.1	Base	Base height of the release (m) (i.e. the height above ground level at which the release occurs; commonly referred to as 'release height')	O	N	Decimal number	

No.	Element name	Description	Req'd.	Mult.	Type	Note
3.1.1.5.2	Top	Top height of the release (m) (i.e. maximum height above ground level reached by the plume)	O	N	Decimal number	
3.1.1.5.3	Effective	Effective release height (m) (i.e. the height above the ground at which the plume centre line becomes essentially level and in buoyancy equilibrium with the environment; commonly referred to as 'effective release height', 'effective stack height' or 'effective plume height')	O	N	Decimal number	
3.1.1.6	HeatEmission	Information on emission of heat accompanying the release	O	N	Container	
3.1.1.6.1	SignificantEmissionOfHeat	Indicator of whether the release is accompanied by a significant emission of heat	O	N	{ Yes | No | Unknown }	
3.1.1.6.2	HeatEmissionRate	Rate of heat emission (MW)	O	N	Floating point number	
3.1.1.6.3	AreaOfHeatEmission	Area of heat emission (m^2)	O	N	Decimal number	
3.1.1.7	TypeOfRelease	Form of nuclides released	O	N	{ Gaseous | Particulate | Gaseous and Particulate }	
3.1.1.8	NuclideReleases	Information on the amount of radioactivity released in the release phase, provided by a nuclide or a list or combination of nuclides	O	N	Container	
3.1.1.8.1	NuclideRelease[]	Information on the amount of radioactivity released in the release phase for a specified nuclide or list or combination of nuclides	R	Y	Container	
3.1.1.8.1.1	Nuclide	A nuclide	R*	N	Nuclide symbol	
3.1.1.8.1.2	NuclideList	A list of nuclides	R*	N	List of nuclide symbols	
3.1.1.8.1.3	NuclideCombination	A nuclide combination	R*	N	{ ... }	See Section 4
3.1.1.8.1.4	NuclideDescription	A nuclide–nuclide combination (free text)	R*	N	Text	
3.1.1.8.1.5	Activity	The amount of activity released (Bq)	R	N	Floating point number	
3.1.1.8.1.6	MethodOfDetermination	Method of determining the amount of activity released	R	N	{ Measurement | Other }	
3.1.1.8.1.7	MethodOfDeterminationDescription	Method of determining the amount of activity released (free text)	O	N	Text	

No.	Element name	Description	Req'd.	Mult.	Type	Note
3.1.1.9	RelativeIodineFractions	Information on the relative iodine fractions in the release	O	N	Container	
3.1.1.9.1	Elementary	Relative iodine fraction for elementary iodine (%)	R	N	Decimal number	
3.1.1.9.2	Organic	Relative iodine fraction for organically bound iodine (%)	R	N	Decimal number	
3.1.1.9.3	Aerosol	Relative iodine fraction for iodine in aerosol form (%)	R	N	Decimal number	
3.1.1.10	ChemicalHealthEffects	Indicator of whether the released material is chemically toxic	O	N	{ Yes | No | Unknown }	
3.1.1.11	PlumeCharacteristics	Information on actual/observed or projected plume characteristics (e.g. transport speed, direction)	O	N	Container	
3.1.1.11.1	TransportSpeed	Transport speed of the plume near release point (m/s)	O	N	Decimal number	
3.1.1.11.2	TransportDirection	Transport direction of the plume near release point (degrees from north)	O	N	Decimal number	
3.1.1.12	Description	Additional free text information relating to this release phase	O	N	HTML	
4	ReleaseToWater	Information on specific releases to water	O	N	Container	
4.1	ReleasePhases	Information on a release to water	R	N	Container	
4.1.1	ReleasePhase[]	Information on a release to water	R	Y	Container	
4.1.1.1	Occurrence	Indicator of whether the release has actually occurred or is projected to occur	R	N	{ Actual | Projected | Projected — Likely to Occur | Projected — Unlikely to Occur | Projected — Certain to Occur }	
4.1.1.2	TimeOfRelease	Start and end time of the release (actual or projected)	O	N	Container	
4.1.1.2.1	StartTime	Start time of the release (actual or projected)	O	N	Date–time string	
4.1.1.2.2	EndTime	End time of the release (actual or projected)	O	N	Date–time string	

No.	Element name	Description	Req'd.	Mult.	Type	Note
4.1.1.3	AffectedWaterBody	Name of water body into which the release occurs	R	N	Text	
4.1.1.4	NuclideReleases	Information on the amount of radioactivity released in the release phase, provided by a nuclide or a list or combination of nuclides	O	N	Container	
4.1.1.4.1	NuclideRelease[]	Information on the amount of radioactivity released in the release phase for a specified nuclide or a list or combination of nuclides	R	Y	Container	
4.1.1.4.1.1	Nuclide	A nuclide	R*	N	Nuclide symbol	
4.1.1.4.1.2	NuclideList	A list of nuclides	R*	N	List of nuclide symbols	
4.1.1.4.1.3	NuclideCombination	A nuclide combination	R*	N	{ ... }	See Section 4
4.1.1.4.1.4	NuclideDescription	A nuclide–nuclide combination (free text)	R*	N	Text	
4.1.1.4.1.5	Activity	The amount of activity released (Bq)	R	N	Floating point number	
4.1.1.4.1.6	MethodOfDetermination	Method of determining the amount of activity released	R	N	{ Measurement | Other }	
4.1.1.4.1.7	MethodOfDeterminationDescription	Method of determining the amount of activity released (free text)	O	N	Text	
4.1.1.5	ChemicalHealthEffects	Indicator of whether the released material is chemically toxic	O	N	{ Yes | No | Unknown }	
4.1.1.6	Description	Additional free text information relating to this release phase	O	N	HTML	

Note: HTML: Hypertext Markup Language.

3.5. The *Meteorology* section

A full listing of the elements of the *Meteorology* section is provided in Table 5 below.

TABLE 5. ELEMENTS OF THE *METEOROLOGY* SECTION

No.	Element name	Description	Req'd.	Mult.	Type	Note
1	@ValidAt	Date and time at which the information contained in this report section was valid	R	N	Date–time string	

No.	Element name	Description	Req'd.	Mult.	Type	Note
2	MeteoRecord[]	Meteorological information and parameters describing the weather at a specified location during a specified period of time, either actual or forecasted	R	Y	Container	
2.1	Type	Indicator of whether the meteorological information represents measured/observed, projected or forecasted weather	O	N	{ Observation | Projection | Projection — Forecast }	
2.2	Location	Location for which weather is described	R	N	Container	For the structure of this element, see *Locations* section (3.11)
2.3	ValidForPeriod	The period of time for which weather is described	R	N	Container	
2.3.1	StartTime	Start time of period	R	N	Date–time string	
2.3.2	EndTime	End time of period	O	N	Date–time string	
2.4	WeatherCode	Weather code (WMO Code 4561)	O	N	Integer number	
2.5	Temperature	Temperature (K)	O	N	Decimal number	
2.6	DewPointTemperature	Dew-point temperature (K)	O	N	Decimal number	
2.7	WindSpeed	Wind speed (m/s)	O	N	Decimal number	
2.7.1	@Fluctuation	Fluctuation in wind speed (m/s)	O	N	Decimal number	
2.8	WindDirection	Wind direction (degrees from north); the direction the wind is blowing from	O	N	Decimal number	
2.8.1	@Fluctuation	Fluctuation in wind direction (degrees)	O	N	Decimal number	
2.9	Pressure	Atmospheric pressure, measured, not normalized to sea level (hPa)	O	N	Decimal number	
2.10	RelativeHumidity	Relative humidity (%)	O	N	Decimal number	
2.11	CloudCover	Cloud cover (okta)	O	N	Integer number	
2.12	SolarRadiation	Solar radiation intensity (W/m^2)	O	N	Decimal number	
2.13	PasquillStabilityClass	Pasquill stability class (A–G)	O	N	Character	
2.14	InversionLayerHeight	Inversion layer height (m)	O	N	Decimal number	
2.15	InversionHeightRange	Inversion layer height range	O	N	Container	
2.15.1	LowerBoundary	Lower boundary of inversion layer height (m)	O	N	Decimal number	
2.15.2	UpperBoundary	Upper boundary of inversion layer height (m)	O	N	Decimal number	

No.	Element name	Description	Req'd.	Mult.	Type	Note
2.16	Precipitation	Information on precipitation	O	N	Container	
2.16.1	Occurrence	Flag for precipitation or no precipitation	R	N	{ Yes | No | Unknown }	
2.16.2	Form	Form of precipitation (e.g. rain, snow)	O	N	{ ... }	See Section 4
2.16.3	FormDescription	Form of precipitation (free text)	O	N	Text	
2.16.4	Amount	Amount of precipitation fallen during the indicated period (mm)	O	N	Decimal number	
2.16.5	Intensity	Amount of precipitation per hour (mm/h)	O	N	Decimal number	
2.16.6	SnowInformation	Information on snow	O	N	Container	
2.16.6.1	Amount	Amount of fallen snow during the indicated period, given as water equivalent (mm)	O	N	Decimal number	
2.17	WeatherDescription	Free text description of actual or forecasted weather	O	N	HTML	

Note: HTML: Hypertext Markup Language; WMO: World Meteorological Organization.

3.6. The *Consequences* section

A full listing of the elements of the *Consequences* section is provided in Table 6 below.

TABLE 6. ELEMENTS OF THE *CONSEQUENCES* SECTION

No.	Element name	Description	Req'd.	Mult.	Type	Note
1	@ValidAt	Date and time at which the information contained in this report section was valid	R	N	Date–time string	
2	HealthIssues	Free text description of any health issues caused by an event	O	N	HTML	
3	EnvironmentalIssues	Free text description of any environmental issues caused by an event	O	N	HTML	
4	FoodstuffIssues	Free text description of any foodstuff related issues caused by an event	O	N	HTML	
5	OtherIssues	Free text description of issues (other than health, environmental and foodstuff related issues) caused by an event	O	N	HTML	

No.	Element name	Description	Req'd.	Mult.	Type	Note
6	AreasAffected	List of areas that are affected or likely to be affected, along with a description of the (radiological) effect	O	N	Container	
6.1	AreaAffected[]	Information about an area that is affected or likely to be affected	O	Y	Container	
6.1.1	Occurrence	Indicator of whether the information describes actual effects or is a projection	O	N	{ Actual | Actual — Confirmed | Actual — Not Confirmed | Projected | Projected — Unlikely to Occur | Projected — Likely to Occur | Projected — Certain to Occur }	
6.1.2	Area	Information on the area affected	R	N	Container	
6.1.2.1	Description	A free text description of the area	R	N	HTML	
6.1.3	Effect	Information of the effect affecting the area	R	N	Container	
6.1.3.1	TypeOfEffect	The type of effect	O	N	{ ... }	See Section 4
6.1.3.2	Description	Free text description of the effect	O	N	HTML	
7	NumbersOfCasualties	Information on the numbers of casualties (exposed, hospitalized, wounded or dead) in an event. The numbers may be tabulated and broken down by type of group of affected people (e.g. public, emergency services).	O	N	Container	
7.1	NumberOfCasualties[]	Information on number of casualties	R	Y	Container	
7.1.1	CasualtyType	The type of casualty for which a number is provided	R*	N	{ ... }	See Section 4
7.1.2	CasualtyTypeDescription	The type of casualty for which a number is provided (free text)	R*	N	Text	
7.1.3	MemberOfGroup	The type of group of people for which the number is provided. If the element is omitted, the provided number is understood to be the total number, irrespective of group.	O	N	{ ... }	See Section 4
7.1.4	MemberOfGroupDescription	The type of group of people for which the number is provided (free text)	O	N	Text	

No.	Element name	Description	Req'd.	Mult.	Type	Note
7.1.5	Number	The number of casualties in the indicated type, either the total number or the subtotal for the group specified	R	N	Integer number	
7.1.6	MethodOfDetermination	Method used to determine the number of casualties	O	N	{ Count | Estimation | Other }	
7.1.7	MethodOfDeterminationDescription	Method used to determine the number of casualties (free text)	O	N	Text	

Note: HTML: Hypertext Markup Language.

3.7. The *Response Actions* section

A full listing of the elements of the *Response Actions* section is provided in Table 7 below.

TABLE 7. ELEMENTS OF THE *RESPONSE ACTIONS* SECTION

No.	Element name	Description	Req'd.	Mult.	Type	Note
1	@ValidAt	Date and time at which the information contained in this report section was valid	R	N	Date–time string	
2	ProtectiveActions	Information on protective actions taken or planned	O	N	Container	
2.1	ProtectiveActionsTakenOrPlanned	Indicator of whether protective actions have been taken or are planned	R	N	{ Yes | No }	
2.2	ProtectiveAction[]	Information on a specific type of protective action taken or planned	O	Y	Container	
2.2.1	TypeOfAction	Type of protective action	R*	N	{ ... }	See Section 4
2.2.2	TypeOfActionDescription	Type of protective action (free text)	R*	N	Text	
2.2.3	Status	Status of protective action	R	N	{ ... }	See Section 4
2.2.4	StartTime	Date and time protective action is ordered	O	N	Date–time string	
2.2.5	EndTime	Date and time protective action is cancelled or lifted	O	N	Date–time string	
2.2.6	AreaSector	Geographical sector within which the protective action is applied	O	N	Container	
2.2.6.1	FromAngle	Start angle of sector (degrees from north)	R	N	Decimal number	
2.2.6.2	TillAngle	Stop angle of sector (degrees from north)	R	N	Decimal number	

No.	Element name	Description	Req'd.	Mult.	Type	Note
2.2.6.3	InnerRadius	Inner radius of sector (m)	R	N	Decimal number	
2.2.6.4	OuterRadius	Outer radius of sector (m)	R	N	Decimal number	
2.2.7	AreaDescription	Free text description of the area in which the protective action is applied	O	N	HTML	
2.2.8	FurthestDistance	Farthest distance from the event location to which the protective action is applied (m)	O	N	Decimal number	
2.2.9	CountriesAffected	List of countries affected by the protective action (if different from the country ordering the protective action)	O	N	List of country codes (ISO 3166 alpha-2)	
2.2.10	Description	Free text description of the protective action	O	N	HTML	
3	DescriptionOfActions	Free text description of actions taken or planned in response to an event	O	N	HTML	

Note: HTML: Hypertext Markup Language; ISO: International Organization for Standardization.

3.8. The *Measurements* section

A full listing of the elements of the *Measurements* section is provided in Table 8 below. A description of the two sub-elements Sample and Dose Rate is provided in the subsections below.

TABLE 8. ELEMENTS OF THE *MEASUREMENTS* SECTION

No.	Element name	Description	Req'd.	Mult.	Type	Note
1	@ValidAt	Date and time at which the information contained in this report section was valid	R	N	Date–time string	
2	Sample[]	Data set with measured concentration levels of different nuclides, or combination of nuclides, in a specific type of substance (e.g. air, food, grass) sampled in a specific geographical location or area at a point or period in time	O	Y	Container	
3	DoseRate[]	Data set with environmental dose rate levels measured at different geographical locations at a specific point or period in time	O	Y	Container	

3.8.1. The Sample element

A full listing of the elements of the Sample element is provided in Table 9 below.

TABLE 9. ELEMENTS OF THE SAMPLE ELEMENT

No.	Element name	Description	Req'd.	Mult.	Type	Note
2.1	SampleType	Type of substance sampled (code list)	R*	N	{ ... }	See Section 4
2.2	SampleTypeDescription	Type of substance sampled (free text)	R*	N	Text	
2.3	SamplingPeriod	Sampling period or time	R	N	Container	
2.3.1	StartTime	Sampling start time	R	N	Date–time string	
2.3.2	EndTime	Sampling end time	R	N	Date–time string	
2.4	Location	Sampling location/area, or reference location from which distance and direction (offset) to this location is provided	R	N	Container	For the structure of this element, see *Locations* section (3.11)
2.5	LocationOffset	Sampling location, given by distance and direction (offset) from given reference location	O	N	Container	
2.5.1	Distance	Distance to location relative to reference location	R	N	Decimal number	
2.5.2	Direction	Direction to location relative to reference location; the direction is measured in degrees from north (0°)	R	N	Decimal number	
2.6	ValueType	The type of value reported (e.g. discrete single measurement (default), or geographical and/or temporal minimum, maximum, or average value measured in the indicated location/area and/or period of time)	O	N	{ ... }	See Section 4
2.7	SamplingDepth	Sampling depth from surface (e.g. for soil samples)	O	N	Container	
2.7.1	MaxDepth	Maximum sampling depth from surface (m)	O	N	Decimal number	
2.7.2	MinDepth	Minimum sampling depth from surface (m)	O	N	Decimal number	
2.8	SurfaceTypeDescription	Description of type of surface from which sample was taken	O	N	Text	
2.9	Volume	Sampling volume (e.g. for air samples) (m^3)	O	N	Floating point number	
2.10	SampleTreatment	Type of treatment undertaken on the sample before measurement	O	N	{ ... }	See Section 4
2.11	SampleTreatmentDescription	Type of treatment undertaken on the sample before measurement (free text)	O	N	Text	
2.12	Description	Additional free text information relating to this data set	O	N	HTML	

No.	Element name	Description	Req'd.	Mult.	Type	Note
2.13	Measurements	Measured concentration values and associated information for one or more nuclides, or combination of nuclides	R	N	Container	
2.13.1	Measurement[]	Measured concentration value and associated information for a specified nuclide, or combination of nuclides	R	Y	Container	
2.13.1.1	Nuclide	A nuclide	R*	N	Nuclide symbol	
2.13.1.2	NuclideList	A list of nuclides	R*	N	List of nuclide symbols	
2.13.1.3	NuclideCombination	A nuclide combination	R*	N	{ ... }	See Section 4
2.13.1.4	NuclideDescription	A nuclide– nuclide combination (free text)	R*	N	Text	
2.13.1.5	Value	Measurement value	R	N	Floating point number	
2.13.1.5.1	@Constraint	Attribute for indicating whether the actual value is less than (LT) or greater than (GT) the reported value	O	N	{ GT | LT }	
2.13.1.5.2	@Unit	Unit of measurement value	R	N	{ ... }	See Section 4
2.13.1.6	Uncertainty	Uncertainty of the measurement value	O	N	Floating point number	
2.13.1.6.1	@Type	Type of uncertainty value given	O	N	{ ... }	See Section 4
2.13.1.6.2	@Constraint	Attribute for indicating whether the actual value is less than (LT) or greater than (GT) the reported value	O	N	{ GT | LT }	
2.13.1.6.3	@Unit	Unit of uncertainty value	R	N	{ ... }	See Section 4
2.13.1.7	Timebase	Time base of measurement (smallest unit of measuring time period)	O	N	Duration string	
2.13.1.8	Background	Information on reference or background levels at same location	O	N	Container	
2.13.1.8.1	Value	Background value (with appropriate unit)	R	N	Floating point number	
2.13.1.8.1.1	@Constraint	Attribute for indicating whether the actual value is less than (LT) or greater than (GT) the reported value	O	N	{ GT | LT }	
2.13.1.8.1.2	@Unit	Unit of measurement value	R	N	{ ... }	See Section 4
2.13.1.8.2	Uncertainty	Uncertainty of the background value	O	N	Floating point number	

No.	Element name	Description	Req'd.	Mult.	Type	Note
2.13.1.8.2.1	@Type	Type of uncertainty value given	O	N	{ ... }	See Section 4
2.13.1.8.2.2	@Constraint	Attribute for indicating whether the actual value is less than (LT) or greater than (GT) the reported value	O	N	{ GT | LT }	
2.13.1.8.2.3	@Unit	Unit of uncertainty value	R	N	{ ... }	See Section 4
2.13.1.8.3	Timebase	Time base of measurement (smallest unit of measuring time period)	O	N	Duration string	
2.13.1.8.4	Method	Description of the method used to determine the background value	O	N	Text	
2.13.1.9	MeasuringPeriod	Start and end time of the measurement	O	N	Container	
2.13.1.9.1	StartTime	Measuring start time	R	N	Date–time string	
2.13.1.9.2	EndTime	Measuring end time	R	N	Date–time string	
2.13.1.10	ReferenceDateAndTime	Reference date and time of the reported measurement value	O	N	Date–time string	
2.13.1.11	ApparatusType	Type of apparatus with which measurement has been performed	O	N	{ ... }	See Section 4
2.13.1.12	ApparatusTypeDescription	Type of apparatus with which measurement has been performed (free text)	O	N	Text	
2.13.1.13	Validated	Optional value indicating whether the measurement value has been validated or not	O	N	{ Not Validated | Validated | Validated — Not Plausible }	
2.13.1.14	Laboratory	Name or type of laboratory at which the measurements were made	O	N	Text	
2.13.1.15	Description	Additional free text information relating to this measurement or measurement value	O	N	HTML	

Note: HTML: Hypertext Markup Language.

3.8.2. The Dose Rate element

A full listing of the elements of the Dose Rate element is provided in Table 10 below.

TABLE 10. ELEMENTS OF THE DOSE RATE ELEMENT

No.	Element name	Description	Req'd.	Mult.	Type	Note
3.1	DoseRateType	Type of dose rate reported in this data set (e.g. gamma, neutron)	R	N	{ ... }	See Section 4
3.2	MeasuringPeriod	Measuring period start and end time	R	N	Container	
3.2.1	StartTime	Measuring start time	R	N	Date–time string	
3.2.2	EndTime	Measuring end time	R	N	Date–time string	
3.3	ApparatusType	Type of apparatus with which measurement has been performed	O	N	{ ... }	See Section 4
3.4	ApparatusTypeDescription	Type of apparatus with which measurement has been performed (free text)	O	N	Text	
3.5	Description	Additional free text information relating to the contained dose rate data set	O	N	HTML	
3.6	Measurements	Dose rate measurement values and associated information for different measurement locations at the measuring time or period given in the containing data set	R	N	Container	
3.6.1	Measurement[]	Dose rate measurement value and associated information for a specific measurement location at the measuring time or period given in the containing data set	R	Y	Container	
3.6.1.1	Location	Location of measurement, or reference location from which distance and direction (offset) to this location is provided	R	N	Container	For the structure of this element, see *Locations* section (3.11)
3.6.1.2	LocationOffset	Location of measurement, given by distance and direction (offset) from reference location	O	N	Container	
3.6.1.2.1	Distance	Distance to location relative to reference location	R	N	Decimal number	
3.6.1.2.2	Direction	Direction to location relative to reference location; the direction is measured in degrees from north (0°)	R	N	Decimal number	
3.6.1.3	Value	Measurement value	R	N	Floating point number	
3.6.1.3.1	@Constraint	Attribute for indicating whether the actual value is less than (LT) or greater than (GT) the reported value	O	N	{ GT | LT }	
3.6.1.3.2	@Unit	Unit of measurement value	R	N	{ ... }	See Section 4

No.	Element name	Description	Req'd.	Mult.	Type	Note
3.6.1.4	Uncertainty	Uncertainty of the measurement value	O	N	Floating point number	
3.6.1.4.1	@Type	Type of uncertainty value given	O	N	{ ... }	See Section 4
3.6.1.4.2	@Constraint	Attribute for indicating whether the actual value is less than (LT) or greater than (GT) the reported value	O	N	{ GT | LT }	
3.6.1.4.3	@Unit	Unit of uncertainty value	R	N	{ ... }	See Section 4
3.6.1.5	Timebase	Time base of measurement (smallest unit of measuring time period)	O	N	Duration string	
3.6.1.6	Background	Information on reference or background levels at same location	O	N	Container	
3.6.1.6.1	Value	Background value (with appropriate unit)	R	N	Floating point number	
3.6.1.6.1.1	@Constraint	Attribute for indicating whether the actual value is less than (LT) or greater than (GT) the reported value	O	N	{ GT | LT }	
3.6.1.6.1.2	@Unit	Unit of measurement value	R	N	{ ... }	See Section 4
3.6.1.6.2	Uncertainty	Uncertainty of the background value	O	N	Floating point number	
3.6.1.6.2.1	@Type	Type of uncertainty value given	O	N	{ ... }	See Section 4
3.6.1.6.2.2	@Constraint	Attribute for indicating whether the actual value is less than (LT) or greater than (GT) the reported value	O	N	{ GT | LT }	
3.6.1.6.2.3	@Unit	Unit of uncertainty value	R	N	{ ... }	See Section 4
3.6.1.6.3	Timebase	Time base of measurement (smallest unit of measuring time period)	O	N	Duration string	
3.6.1.6.4	Method	Description of the method used to determine the background value	O	N	Text	
3.6.1.7	Validated	Optional value indicating whether the measurement value has been validated or not	O	N	{ Not Validated | Validated | Validated — Not Plausible }	
3.6.1.8	Description	Additional free text information relating to this measurement or measurement value	O	N	HTML	

Note: HTML: Hypertext Markup Language.

3.9. The *Medical Information* section

A full listing of the elements of the *Medical Information* section is provided in Table 11 below.

TABLE 11. ELEMENTS OF THE *MEDICAL INFORMATION* SECTION

No.	Element name	Description	Req'd.	Mult.	Type	Note
1	@ValidAt	Date and time at which the information contained in this report section was valid	R	N	Date–time string	
2	PersonsDiagnosed	List with information on the medical assessments of examined persons	O	N	Container	
2.1	PersonDiagnosed[]	Information on the medical assessment of one examined person	R	Y	Container	
2.1.1	Identity	Information on the identity of the examined person	R	N	Container	
2.1.1.1	Code	Code used to identify or refer to the examined person (the code need not reveal the person's actual identity)	R	N	Text	
2.1.1.2	Name	The person's name (optional)	O	N	Text	
2.1.1.3	Description	Additional free text information relating to the identity of the examined person	O	N	HTML	
2.1.2	HealthEffectsDiagnosed	List of health effects diagnosed on the examined person	O	N	Container	
2.1.2.1	HealthEffectDiagnosed[]	Information on the diagnosis of a particular health effect	O	Y	Container	
2.1.2.1.1	TypeOfHealthEffect	Type of health effect diagnosed	R*	N	{ ... }	See Section 4
2.1.2.1.2	TypeOfHealthEffectDescription	Type of health effect diagnosed (free text)	R*	N	Text	
2.1.2.1.3	DiagnosticResult	Diagnostic result (negative, possible, etc.)	R	N	{ ... }	See Section 4
2.1.2.1.4	Description	Additional free text information relating to the diagnosis of this type of health effect	O	N	HTML	
2.1.3	HealthConsequencesPrognosed	List of health consequences prognosed on the examined person	O	N	Container	
2.1.3.1	HealthConsequencePrognosed[]	Information on the prognosis of a particular health consequence	O	Y	Container	
2.1.3.1.1	TypeOfHealthConsequence	Type of health consequence	R*	N	{ ... }	See Section 4

No.	Element name	Description	Req'd.	Mult.	Type	Note
2.1.3.1.2	TypeOfHealthConsequenceDescription	Type of health consequence (free text)	R*	N	Text	
2.1.3.1.3	PrognosedOccurrence	Indicator of whether the type of health consequence is prognosed to occur	R	N	{ ... }	See Section 4
2.1.3.1.4	Description	Additional free text information relating to the prognosis of this type of health consequence	O	N	HTML	
2.1.4	DoseAssessments	Information on dose assessments performed on the examined person	O	N	Container	
2.1.4.1	AssessedDose[]	Information on the assessment of a particular type of dose (whole body, specific organ or tissue) performed on the examined person	O	Y	Container	
2.1.4.1.1	TypeOfDose	The type of dose assessed (e.g. whole body, dose to a specific organ or tissue)	R*	N	{ ... }	See Section 4
2.1.4.1.2	TypeOfDoseDescription	The type of dose assessed (free text)	R*	N	Text	
2.1.4.1.3	DoseValue	The assessed dose (Sv or Gy)	R	N	Floating point number	
2.1.4.1.3.1	@Constraint	Attribute for indicating whether the actual value is less than (LT) or greater than (GT) the reported value	O	N	{ GT | LT }	
2.1.4.1.3.2	@Unit	Unit (Sv or Gy)	R	N	{ Sv | Gy }	
2.1.4.1.4	DoseAssessmentMethod	Free text description of the dose assessment method used	O	N	Text	
2.1.4.1.5	Description	Additional free text information relating to the assessment of this type of dose	O	N	HTML	
2.1.4.2	Description	Additional free text information relating to the dose assessments performed on the person	O	N	HTML	
2.1.5	Description	Additional free text information relating to the medical assessment of the examined person	O	N	HTML	

Note: HTML: Hypertext Markup Language.

3.10. The *Media Information* section

A full listing of all the elements of the *Media Information* section is provided in Table 12 below.

TABLE 12. ELEMENTS OF THE *MEDIA INFORMATION* SECTION

No.	Element name	Description	Req'd.	Mult.	Type	Note
1	@ValidAt	Date and time at which the information contained in this report section was valid	R	N	Date–time string	
2	PublicInformationContacts	Contact information that may be used for coordination of press releases and public communication	O	N	Container	
2.1	PersonContactInfo[]	Contact details of a person responsible for coordination of press releases and public communication	O	Y	Container	
2.1.1	Name	Name of person or contact	R	N	Text	
2.1.2	UserID	An identifier of the person	O	N	Email address string	
2.1.3	Position	The position or function of the person in his/her organization	O	N	Text	
2.1.4	OrganisationID	A reference to the identifier of the organization to which the person belongs; the contact details of the organization may or may not be included in the report	O	N	Internet domain name string	
2.1.5	PhoneNumber	Phone number of the contact	O	N	Phone number string	
2.1.6	FaxNumber	Fax number of the contact	O	N	Phone number string	
2.1.7	EmailAddress	Email address of the contact	O	N	Text	
2.1.8	Description	Additional contact information	O	N	HTML	
2.2	OrganisationContactInfo[]	Contact details of the organization with which the contact person(s) listed are affiliated	O	Y	Container	
2.2.1	Name	Name of the organization	R	N	Text	
2.2.2	OrganisationID	Identification string of the organization	R	N	Internet domain name string	
2.2.3	Country	Country to which the organization belongs	R	N	Country code (ISO 3166 alpha-2)	
2.2.4	WebAddress	Address of the public web site of the organization	O	N	URL string	
2.2.5	Address[]	Visiting and/or postal address of the organization	O	Y	Container	
2.2.5.1	@Type	Attribute indicating the type of the address (visiting or mailing address)	R	N	{ Visiting Address | Postal Address }	

No.	Element name	Description	Req'd.	Mult.	Type	Note
2.2.5.2	Postbox	Postbox number	O	N	Text	
2.2.5.3	Street	Street address	O	N	Text	
2.2.5.4	PostalCode	Postal or ZIP code	R	N	Text	
2.2.5.5	Municipality	Municipality name	R	N	Text	
2.2.5.6	Country	Country	R	N	Country code (ISO 3166 alpha-2)	
2.2.6	PhoneNumber	Phone number of the contact	O	N	Phone number string	
2.2.7	FaxNumber	Fax number of the contact	O	N	Phone number string	
2.2.8	EmailAddress	Email address of the contact	O	N	Text	
2.2.9	Description	Additional contact information	O	N	HTML	
3	PublicWebsiteURL	Web address of public web site where press releases and public information is made available	O	N	URL string	

Note: HTML: Hypertext Markup Language; ISO: International Organization for Standardization.

3.11. The *Locations* section

A full listing of the elements of the *Locations* section is provided in Table 13 below.

TABLE 13. ELEMENTS OF THE *LOCATIONS* SECTION

No.	Element name	Description	Req'd.	Mult.	Type	Note
1	Location[]	Information describing a geographical location	R	Y	Container	
1.1	Name	Name of location	O	N	Text	
1.2	GeographicCoordinates	Geographical coordinates and height of location	O	N	Container	
1.2.1	Latitude	Latitude of location (WGS84); positive for northern hemisphere	R	N	Decimal number	

1.2.2	Longitude	Longitude of location (WGS84); positive east of Greenwich meridian	R	N	Decimal number
1.2.3	Height[]	Height of location (m), above ground or sea level (or both)	O	Y	Decimal number
1.2.3.1	@Above	Attribute indicating whether the specified height is measured above land or above sea	R	N	{ Sea | Land }
1.3	Municipality	Name of municipality	O	N	Text
1.4	AdministrativeUnit	Name of administrative unit to which municipality belongs	O	N	Text
1.5	Country	Country	O	N	Country code (ISO 3166 alpha-2)
1.6	AccuracyType	Indicator of whether the location refers to a region or an exact location	O	N	{ Reference of Region | Exact Location}
1.7	Description	Free text description of location	O	N	HTML
1.8	@id	An identifier for referring to this location from within other parts of the report	R	N	String

Note: HTML: Hypertext Markup Language; ISO: International Organization for Standardization; WGS: World Geodetic System.

3.12. The *Requests* section

A listing of all the elements of the *Requests* section is provided in the Table 14 below.

TABLE 14. ELEMENTS OF THE *REQUESTS* SECTION

No.	Element name	Description	Req'd.	Mult.	Type	Note
1	Request[]	Information on a request	O	Y	Container	
1.1	RequestUUID	Unique identifier of this request	R	N	UUIDv4 string	
1.2	TypeOfRequest	Type of request	O	N	{ ... }	See Section 4
1.3	RequestSubject	Subject of request	R	N	Text	
1.4	*[]	Additional meta-information associated with the request	O	Y	Any extension element	
1.5	RequestText	Body text of the request	R	N	HTML	
2	Response[]	Information on a response to a request	O	Y	Container	

2.1	ResponseUUID	Unique identifier of this response	R	N	UUIDv4 string	
2.2	RequestReference[]	Information on the request to which this response relates	R	Y	Container	
2.2.1	RequestingOrganisation	Identifier of organization originating the request	O	N	Internet domain name string	
2.2.2	DateAndTimeOfRequest	Date and time of the request	O	N	Date–time string	
2.2.3	RequestUUID	Reference to the unique identifier of the request	O	N	UUIDv4 string	
2.2.4	TypeOfRequest	Type of request	O	N	{ ... }	See Section 4
2.2.5	RequestSubject	Subject of request	O	N	Text	
2.2.6	*[]	Additional meta-information associated with the request	O	Y	Any extension element	
2.2.7	RequestText	Body text of the request	O	N	HTML	
2.3	*[]	Additional meta-information associated with the response	O	Y	Any extension element	
2.4	ResponseText	Body text of the response	R	N	HTML	

Note: HTML: Hypertext Markup Language; UUID: universally unique identifier.

3.13. The *Annexes* section

A listing of the elements of the *Annexes* section is provided in Table 15 below. A description of each of the elements is provided in the subsections below.

TABLE 15. ELEMENTS OF THE *ANNEXES* SECTION

No.	Element name	Description	Req'd.	Mult.	Type	Note
1	Annotation[]	An annotation (i.e. a free formatted HTML text with additional information to the report)	O	Y	Container	
2	FileEnclosure[]	File attached to the report and associated meta-information	O	Y	Container	
3	Signature[]	A digital signature over the report	O	Y	Container	

Note: HTML: Hypertext Markup Language.

3.13.1. The Annotation element

A full listing of the elements of the Annotation element in the *Annexes* section is provided in Table 16 below.

TABLE 16. ELEMENTS OF THE ANNOTATION ELEMENT

No.	Element name	Description	Req'd.	Mult.	Type	Note
1.1	Title	The annotation title	O	N	Text	
1.2	*[]	Metadata associated with the annotation	O	Y	Any extension element	
1.3	Text	The annotation body text	R	N	HTML	

Note: HTML: Hypertext Markup Language.

3.13.2. The File Enclosure element

A full listing of the elements of the File Enclosure element under the *Annexes* section is provided in Table 17 below.

TABLE 17. ELEMENTS OF THE FILE ENCLOSURE ELEMENT

No.	Element name	Description	Req'd.	Mult.	Type	Note
2.1	Title	Title of the enclosed file	R	N	Text	
2.2	InformationCategory[]	Type of information contained in the enclosed file	O	Y	{ ... }	See Section 4
2.3	InformationCategoryDescription[]	Type of information contained in the enclosed file (free text)	O	Y	Text	
2.4	AuthorOrganisation	The organization that authored the enclosed file	O	N	Internet domain name string	
2.5	Confidentiality	Confidentiality of the enclosed file	O	N	{ ... }	See Section 4
2.6	ValidAt	Date and time at which the information contained in the file is/was valid	O	N	Date–time string	
2.7	Language	Language of the content of the enclosed file (see RFC 3066)	O	N	Language code	
2.8	Description	Free text description of the content of the enclosed file	O	N	HTML	
2.9	FileName	File name (without path information)	O	N	Text	
2.10	FileDateAndTime	File date and time	O	N	Date–time string	
2.11	MimeType	Mime type of enclosed file. The value should be a valid content type, as specified in RFC 2045, para. 5.1, excluding the 'content type' string.	R	N	Text	

No.	Element name	Description	Req'd.	Mult.	Type	Note
2.12	FileSize	Size of enclosed file (bytes)	R	N	Long integer number	
2.13	FileHash	SHA-1 digest value (fingerprint) of enclosed file, allowing efficient identification of identical copies of the enclosed file	O	N	Hexadecimal encoded binary data	
2.14	*[]	Additional metadata associated with the file	O	Y	Any extension element	
2.15	EnclosedObject	Base64 encoded file object	R	N	Base64 encoded binary data	

Note: HTML: Hypertext Markup Language; SHA: Secure Hash Algorithm.

3.13.3. The Signature element

The Signature element under the *Annexes* section allows the inclusion of a digital signature over the contents of the report. The structure of the digital signature follows the standard W3C XML Signature definition for embedded signatures, with the restriction that the signature must be valid over the entire IRIX report document, optionally excluding any other signatures included in this same section of the report [6].

Section 4

4. VALUE LISTS USED IN THE IRIX FORMAT

This section contains value lists defined in the IRIX Format. A value list defines possible standard values for use with certain elements in the IRIX Format. Each subsection corresponds to a section of the IRIX Format and demonstrates value lists used in that section. Some value lists are used in more than one section. In these cases, the value list is fully described only at one location, and other locations just point back to that location.

4.1. Lists used in *Identification* section

4.1.1. Confidentialities

The Confidentialities list contains the possible values that may be used with the Confidentiality element in the *Identification* section of the IRIX report.

Value
For Addressees Use Only
For Authority Use Only
Free for Public Use

4.1.2. Reporting Requirements

The Reporting Requirements list contains standard values for known international reporting used with the Reporting Basis element in the *Identification* section of the IRIX report.

Value
Convention on Early Notification of a Nuclear Accident, Article 2
IAEA Safety Standards Series No. GSR Part 7, Notification of 'Transnational Emergency'
EU Council Decision 87/600/EURATOM

4.2. Lists used in *Event Information* section

4.2.1. Event Types

The Event Types list contains standard values that may be used with the Type of Event element in the *Event Information* section of the IRIX report.

Value
Nuclear Installation Event
Missing Dangerous Source
Discovered Dangerous Source

Space Object Re-entry
Elevated Ambient Radiation Levels
Contamination in Food / Drinking Water
Contamination in Commodities
Severe Overexposure
Transport Event
Credible Threat
Malicious Act
Other

4.2.2. Object and Activity Types

The Object and Activity Types list contains standard values that may be used with the Type of Object or Activity element in the *Event Information* section of the IRIX report.

Value
Nuclear Power Plant
Fuel Fabrication
Enrichment
Spent Fuel Storage
Spent Fuel Transport
Fuel Reprocessing
Research Reactor
Marine Reactor
Manufacture of Radioisotopes
Waste Treatment
Irradiation Facility

4.2.3. Nuclide Combinations

The Nuclide Combinations list contains standard values that may be used with the Nuclide Combination element under the Source Characteristics element in the *Event Information* section of the IRIX report.

For the list of values, see Section 4.7.44.7.4.

4.2.4. Reactor Types

The Reactor Types list contains standard values that may be used with the Type of Reactor element in the *Event Information* section of the IRIX report.

Value	Description
PWR	Pressurized light water moderated and cooled reactor
BWR	Boiling light water cooled and moderated reactor
AGR	Advanced gas cooled graphite moderated reactor
VVER	Water cooled, water moderated power reactor: a reactor model of type PWR (pressurized light water moderated and cooled reactor)
RBMK	High-power channel-type reactor: a reactor model of type LWGR (light water cooled, graphite moderated reactor)
CANDU	Canada deuterium–uranium reactor: a reactor model of type PHWR (pressurized heavy water moderated and cooled reactor)

4.2.5. Emergency Classes

The Emergency Classes list contains standard values that may be used with the Emergency Class element in the *Event Information* section of the IRIX report. The list is derived from IAEA Safety Standards Series No. GSR Part 7, Preparedness and Response for a Nuclear or Radiological Emergency [7].

Value
General Emergency
Site Area Emergency
Facility Emergency
Alert

4.3. Lists used in *Release Information* section

4.3.1. Nuclide Combinations

The Nuclide Combinations list contains standard values that may be used with the Nuclide Combination element in the *Release* section of the IRIX report.

For the list of values, see Section 4.7.4.

4.3.2. Release Routes

The Release Routes list contains standard values that may be used with the Release Route element in the *Release* section of the IRIX report. The list is derived from IAEA-TECDOC-955, Generic Assessment Procedures for Determining Protective Actions during a Reactor Accident [8].

Value
Release from Containment
Containment bypass under dry conditions
Containment bypass under wet conditions
Release from Spent Fuel Pool

4.4. Lists used in *Meteorology* section

4.4.1. Precipitation Forms

The Precipitation Forms list contains standard values that may be used with the Form element in the *Meteorology* section of the IRIX report.

Value
Rain
Light Rain
Heavy Rain
Snow
Rain and Snow Mixed

4.5. Lists used in *Consequences* section

4.5.1. Consequence Types

The Consequence Types list contains standard values that may be used with the Type of Effect element under the Areas Affected element in the *Consequences* section of the IRIX report.

Value
Contamination
Elevated Radiation Levels

4.5.2. Casualty Categories

The Casualty Categories list contains standard values that may be used with the Casualty Type element under the Numbers of Casualties element in the *Consequences* section of the IRIX report.

Value
Exposed
Hospitalised
Wounded
Dead

4.5.3. Casualty Groups

The Casualty Groups list contains standard values that may be used with the Member of Group element under the Numbers of Casualties element in the *Consequences* section of the IRIX report.

Value
Public
Emergency Services
Unknown

4.6. Lists used in *Response Actions* section

4.6.1. Protective Action Types

The Protective Action Types list contains standard values that may be used with the Type of Action element under the Protective Action element in the *Response Actions* section of the IRIX report.

Value
Stable Iodine Prophylaxis
Sheltering
Evacuation
Food Restrictions
Restriction on Water Use
Access Restrictions
Urgent Decontamination
Registration for Follow-Up

4.6.2. Protective Action Statuses

The Protective Action Statuses list contains the possible values that may be used with the Status element under the Protective Action element in the *Response Actions* section of the IRIX report.

Value	Description
Under Consideration	The protective action is being considered
Planned	The protective action has been planned to be implemented but has not yet been ordered or initiated
Ordered	The protective action has been ordered
Initiated	The implementation of the protective action has been initiated
Taken	The protective action has been taken
Withdrawn	The protective action has been lifted

4.7. Lists used in *Measurements* section

4.7.1. Measurement Value Types

The Measurement Value Types list contains the possible values that may be used with the Value Type element under the Sample element in the *Measurements* section of the IRIX report.

Value
Discrete Single Measurements
Discrete Sample From Single Source
Discrete Sample From Bulked Source
Time Average Discrete Measurements
Time Average — 1 Week
Time Average — 1 Month
Time Average — 2 Months
Time Average — 3 Months
Time Average — 6 Months
Time Average — 1 Year
Geographical Average Discrete Measurements
Time and Geographical Average
Bulked Sample Average
Centre Point of Quoted Range
Highest Value
Lowest Value

4.7.2. Dose Rate Types

The Dose Rate Types list contains the possible values that may be used with the Dose Rate Type element under the Dose Rate element in the *Measurements* section of the IRIX report.

Value
Gamma
Beta
Beta–Gamma
Neutron

4.7.3. Sample Types

The Sample Types list contains sample type codes that may be used with the Sample Type element under the Sample element in the *Measurements* section of the IRIX report. The list includes, but is not limited to, environmental and food sample types. The list is derived from the list of sample type codes defined in the European Radioactivity Environmental Monitoring Database. For reasons of space, only a limited part of the list is included here. For the complete list, please refer to the resource files provided with the IRIX XML Schema; see Appendix I.

Value (Code)	Description
A	Environmental Samples
A1	Air Samples
A11	Outdoor Air
A2	Water Samples
A20	Fresh Water — Unspecified
A21	Surface Water
A210	Surface Water — Not Further Specified

A211	River Water
A212	Lake Water
A213	Groundwater (not for consumption)
A214	Sea Water
A215	Swamp Water
A216	Well Water
A22	Drinking Water
A220	Drinking Water — Not Further Specified
A221	Drinking Water — Surface Water
A222	Drinking Water — Tap
A223	Groundwater (for consumption)
A224	Water Treatment Plant
A225	Borehole
A23	Wastewater
A230	Wastewater — Not Further Specified
A231	Wastewater — Clarified
A2Z1	Non-Potable Water — Currently Unclassified
A2Z2	Raw Water — Currently Unclassified
A3	Soil
A31	Ground
A310	Ground — Not Further Specified
A311	Sand
A312	Silt
A313	Peat
A314	Mud
A315	Shingle
A316	Loess
A317	Calcareous Soil
A318	Sediment
A319	Sandy Loam
A31A	Loamy Sand
A31B	Clay Loam
A32	Soil + Grass
A33	In Situ
A4	Deposition
A40	Deposition — Not Further Specified
A41	Fallout Collectors
A410	Fallout Collectors — Not Further Specified
A411	Total Deposition
A412	Dry Deposition
A413	Wet Deposition
A42	Precipitation
A420	Precipitation — Not Further Specified
A421	Rainwater
A422	Snowmelt Water
A423	Snow
A43	Grass
A44	Aerial Gamma
A5	External Radiation
A6	Sediment
AZ	Environmental Samples — Currently Unclassified

4.7.4. Nuclide Combinations

The Nuclide Combinations list contains standard values that may be used with the Nuclide Combination element under the Sample element in the *Measurements* section of the IRIX report.

Value	Description
T-Alpha	Total Alpha
T-Beta	Total Beta
T-Gamma	Total Gamma
R-Beta	Residual Beta (Total Beta Activity Minus Potassium-40)
T-Ca	Total Calcium
T-K	Total Potassium
T-Na	Total Sodium
T-U	Total Uranium
Sr+Rare	Strontium and Rare Earth Elements Combined
I-131(G)	Iodine-131 Gaseous
I-131(P)	Iodine-131 Particulate
I-131(P+G)	Iodine-131 Particulate + Gaseous
Cs(134/137)	Ratio of Cesium-134 to Cesium-137
Sr(89/90)	Ratio of Strontium-89 to Strontium-90

4.7.5. Units

The Units list contains the possible values that may be used with the Unit elements or attributes in the *Measurements* section of the IRIX report.

Value	Description
Bq	Becquerel
Bq/kg	Becquerel per kilogram
Bq/m^3	Becquerel per cubic metre
Bq/L	Becquerel per litre
Bq/m^2	Becquerel per square metre
Bq/s	Becquerel per second
Bq/m^2/s	Becquerel per square metre and second
Bq/s/CAP	Becquerel per second and capita
Bqs/m^3	Becquerel seconds per cubic metre
Sv	Sievert
Gy	Gray
Sv/s	Sievert per second
Gy/s	Gray per second
cps	Counts per second
m	Metre
m^2	Square metre
m^3	Cubic metre
m/m^2	Metre per square metre
kg	Kilogram
kg/kg	Kilogram per kilogram
kg/L	Kilogram per litre
kg/m^2	Kilogram per square metre
kg/m^3	Kilogram per cubic metre
L	Litre
L/m^2	Litre per square metre
%	Percentage

%/d	Percentage per day
RATIO	Ratio
95%	95th Percentile
99%	99th Percentile

4.7.6. Uncertainty Types

The Uncertainty Types list contains the possible values that may be used with the Uncertainty Type elements or attributes in the *Measurements* section of the IRIX report.

Value	Description
SD	Standard Deviation
2SD	2 × Standard Deviation
3SD	3 × Standard Deviation
SEm	Standard Error of the Mean
95%	95th Percentile
99%	99th Percentile
ABwI	Absolute Error (± Interval Around Centre Value)
%	Percentage
SDP	Standard Deviation Percentile
DL	Detection Limit
SE	Standard Error
RSD	Relative Standard Deviation
SEES	Statistical Error + Estimated Systematical

4.7.7. Apparatus Types

The Apparatus Types list contains standard values that may be used with the Apparatus Type element in the *Measurements* section of the IRIX report.

Value
Alpha — ZnS Scintillator
Alpha — Track Etching
Alpha — Solid State Detector
Alpha – Unspecified
Beta — Proportional Counter
Beta — Geiger Muller Counter
Beta — Plastic Scintillator
Beta — Liquid Scintillator
Beta — Solid State Detector
Beta – Unspecified
Beta and Alpha — Plastic and ZnS Scintillators, Combination
Beta and Gamma – Unspecified
Gamma — TLD
Gamma — Ionisation Chamber
Gamma — NaI Detector
Gamma — Solid State Detector
Gamma — Unspecified
Atomic Absorption
Beta — Geiger Muller or Scintillator
Gamma — Spectrometry Scintillator
Beta — Counting Scintillator
Alpha — Counting

Gamma — Thermoluminescent Detector
Alpha — Spectrometry
Gamma — Geiger Muller Tube
Unknown

4.7.8. Sample Treatment Types

The Sample Treatment Types list contains standard values that may be used with the Sample Treatment element under the Sample element in the *Measurements* section of the IRIX report.

Value
Carbonisation and Homogenisation
Drying and Ashing
Delay of 5 Days
Delay of 3 Days
Measurement Immediately After Sampling
Measurement Within One Week After Sampling
Gas Chromatographic Separation
Ion Chromatographic Separation of Nuclides
(Radio)Chemical Separation of Nuclides
'On Line' Separation of Nuclides by Ion-Exchange
Sample Being Deep Frozen
Oven Dried — Stones Removed
Liquid Reduced to its Residue by Drying, Evaporation, Calcination
Suspended Matter Removed by Filtration
Suspended Matter Selected by Filtration
Evaporated Dryless
Homogenisation
Liquid Reduced to 50% of its Original Volume
Cleaned and Mixed
Pulverisation and Homogenisation
Air Dried if Necessary, Stones Removed
Sample Washed
Evaporation + Ashing, Filtering + Ashing
Dried + Homogenised
Mixed
No Treatment

4.8. Lists used in *Medical Information* section

4.8.1. Health Effects

The Health Effects list contains standard values that may be used with the Type of Health Effect element under the Person Diagnosed element in the *Medical Information* section in the IRIX report.

Value
Acute Radiation Syndrome
Bone Marrow Depression
Cataract
Erythema
Necrosis
Pneumonitis
Ulceration

4.8.2. Diagnostic Results

The Diagnostic Results list contains the possible values that may be used with the Diagnostic Result element under the Person Diagnosed element in the *Medical Information* section in the IRIX report.

Value
Negative
Possible
Probable
Definite

4.8.3. Health Consequences

The Health Consequences list contains standard values that may be used with the Type of Health Consequence element under the Person Diagnosed element in the *Medical Information* section in the IRIX report.

Value
Amputation
Contracture
Fatality

4.8.4. Prognosed Occurrences

The Prognosed Occurrences list contains the possible values that may be used with the Prognosed Occurrence element under the Person Diagnosed element in the *Medical Information* section in the IRIX report.

Value
Negative
Possible
Probable
Definite

4.8.5. Dose Types

The Dose Types list contains standard values that may be used with the Type of Dose element under the Person Diagnosed element in the *Medical Information* section in the IRIX report.

Value
Whole Body
Head/Neck
Eye/Lens
Thyroid
Skin
Breast/Chest
Bone Marrow
Colon
Gonads
Lung

4.9. Lists used in *Requests* section

4.9.1. Request Types

The Request Types list contains the possible values that may be used with the Type of Request element in the *Requests* section of the IRIX report.

Value
Request for Information
Request for Clarification
Request for Advice
Request for Assistance

4.10. Lists used in *Annexes* section

4.10.1. Confidentialities

The Confidentialities list contains the possible values that may be used with the Confidentiality element under the File Enclosure element in the *Annexes* section of the IRIX report.

For the list of values, see Section 4.1.1.

4.10.2. Information Categories

The Information Categories list contains standard values that may be used with the Information Category element under the File Enclosure element in the *Annexes* section of the IRIX report.

Value
Event Information
Installation Status Information
Release Information
Meteorological Information
Measurement Data
Protective Actions Information
Response Information
Public Information
Public Information — Press Release
Modelling Results
Modelling Results — Averted Dose
Modelling Results — Cloud Arrival Time
Modelling Results — Contamination
Modelling Results — Dispersion
Modelling Results — Dose Rate
Modelling Results — Projected Dose
Modelling Results — Plume Trajectory

APPENDIX I. XML SCHEMAS

An XML Schema for the IRIX Format can be obtained on the IRIX collaboration area.[2]

The IRIX XML Schema describes the structure and formatting rules to which the IRIX report must conform.

The IRIX XML Schema is written in the W3C XML Schema language and can be used for automatic validation of the structure and format of IRIX reports, and also in software development to create data structures that allow for easy access to the content of the IRIX report [9].

A second schema language called Schematron has been used to describe and help validate some additional structural constraints that the IRIX report must conform to and that cannot be expressed in the XML Schema language. Schematron is a rule based validation language for making assertions about the presence or absence of patterns in XML trees. The Schematron rules are embedded within the main IRIX XML Schema [10].

[2] Access requires an IAEA Nucleus account and registration; please contact iec-routine@iaea.org.

APPENDIX II. EXAMPLES

This appendix includes examples that illustrate the structure of the different sections of the IRIX Format.

II.1. The *Identification* section

The following example (Fig. 2) illustrates the minimum required set of elements that must be provided in the *Identification* section of the IRIX report. Note that the report is basically empty since it contains no content sections.

```
<?xml version="1.0" encoding="UTF-8"?>
<irix:Report version="1.0" xmlns:irix="http://www.iaea.org/2012/IRIX/Format"
xmlns:id="http://www.iaea.org/2012/IRIX/Format/Identification"
    xmlns:base="http://www.iaea.org/2012/IRIX/Format/Base"
xmlns:html="http://www.w3.org/1999/xhtml">
    <id:Identification>
        <id:OrganisationReporting>ca.org</id:OrganisationReporting>
        <id:DateAndTimeOfCreation>2012-01-15T10:00:00Z</id:DateAndTimeOfCreation>
        <id:ReportContext>Exercise</id:ReportContext>
        <id:ReportUUID>550e8400-e29b-41d4-a716-446655440000</id:ReportUUID>
        <id:Identifications>
            <base:OrganisationContactInfo>
                <base:Name>Fantasyland Radiation Safety Authority</base:Name>
                <base:OrganisationID>ca.org</base:OrganisationID>
                <base:Country>FL</base:Country>
            </base:OrganisationContactInfo>
        </id:Identifications>
    </id:Identification>
</irix:Report>
```

FIG. 2. Minimum required set of elements that must be provided in the Identification section of the IRIX report.

The following example (Fig. 3) illustrates the use of many of the optional elements defined the *Identification* section of the IRIX Format.

```
<?xml version="1.0" encoding="UTF-8"?>
<irix:Report version="1.0"
    xmlns:irix="http://www.iaea.org/2012/IRIX/Format"
    xmlns:id="http://www.iaea.org/2012/IRIX/Format/Identification"
    xmlns:base="http://www.iaea.org/2012/IRIX/Format/Base"
    xmlns:html="http://www.w3.org/1999/xhtml">
    <id:Identification>
        <id:OrganisationReporting>ca.org</id:OrganisationReporting>
        <id:DateAndTimeOfCreation>2012-01-15T10:00:00Z</id:DateAndTimeOfCreation>
        <id:ReportContext>Exercise</id:ReportContext>
        <id:SequenceNumber>2</id:SequenceNumber>
        <id:ReportUUID>550e8400-e29b-41d4-a716-446655440000</id:ReportUUID>
        <id:Follows>550e8400-e29b-41d4-a716-446655441234</id:Follows>
        <id:Confidentiality>For Authority Use Only</id:Confidentiality>
        <id:Addressees>
            <id:Addressee>iaea.org</id:Addressee>
        </id:Addressees>
        <id:ReportingBases>
            <id:ReportingBasis>Convention on Early Notification of a Nuclear Accident, Article
2</id:ReportingBasis>
        </id:ReportingBases>
        <id:ContactPerson>contact-person@ca.org</id:ContactPerson>
        <id:AdditionalInformationURL>https://ca.org/</id:AdditionalInformationURL>
        <id:EventIdentifications>
            <id:EventIdentification>EV201201</id:EventIdentification>
            <id:EventIdentification Organisation="iaea.org">2012/11</id:EventIdentification>
        </id:EventIdentifications>
        <id:Identifications>
            <base:PersonContactInfo>
                <base:Name>Mr Joe Smith</base:Name>
                <base:UserID>contact-person@ca.org</base:UserID>
                <base:Position>Officer on Duty</base:Position>
                <base:OrganisationID>ca.org</base:OrganisationID>
            </base:PersonContactInfo>
            <base:OrganisationContactInfo>
                <base:Name>Fantasyland Radiation Safety Authority</base:Name>
                <base:OrganisationID>ca.org</base:OrganisationID>
                <base:Country>FL</base:Country>
                <base:PhoneNumber>+123456789</base:PhoneNumber>
                <base:FaxNumber>+123456789</base:FaxNumber>
            </base:OrganisationContactInfo>
        </id:Identifications>
    </id:Identification>
</irix:Report>
```

FIG. 3. Use of many of the optional elements defined the Identification section of the IRIX Format.

II.2. The *Event Information* section

The following example (Fig. 4) illustrates the structure of the *Event Information* section of the IRIX Format.

```
<?xml version="1.0" encoding="UTF-8"?>
<irix:Report version="1.0" xmlns:irix="http://www.iaea.org/2012/IRIX/Format"
    xmlns:id="http://www.iaea.org/2012/IRIX/Format/Identification"
    xmlns:loc="http://www.iaea.org/2012/IRIX/Format/Locations"
    xmlns:base="http://www.iaea.org/2012/IRIX/Format/Base"
    xmlns:html="http://www.w3.org/1999/xhtml">
    <id:Identification>                                                    [13 lines]
    <ev:EventInformation ValidAt="2012-01-15T10:00:00Z"
        xmlns:ev="http://www.iaea.org/2012/IRIX/Format/EventInformation">
        <ev:TypeOfEvent>Nuclear Installation Event</ev:TypeOfEvent>
        <ev:TypeOfEventDescription>Station blackout triggered by severe weather
conditions</ev:TypeOfEventDescription>
        <ev:DateAndTimeOfEvent>2012-01-15T08:00:00Z</ev:DateAndTimeOfEvent>
        <loc:Location>
            <loc:Name>Fantasylocation</loc:Name>
            <loc:Country>FL</loc:Country>
        </loc:Location>
        <ev:ObjectInvolved>
            <ev:TypeOfObjectOrActivity>Nuclear Power Plant</ev:TypeOfObjectOrActivity>
            <ev:Name>Fantasy NPP Unit I</ev:Name>
            <loc:Location>
                <loc:GeographicCoordinates>
                    <loc:Latitude>60.403333</loc:Latitude>
                    <loc:Longitude>18.166667</loc:Longitude>
                </loc:GeographicCoordinates>
            </loc:Location>
            <ev:ReactorCharacteristics>
                <ev:TypeOfReactor>BWR</ev:TypeOfReactor>
                <ev:ThermalPower Unit="MW">2928</ev:ThermalPower>
            </ev:ReactorCharacteristics>
        </ev:ObjectInvolved>
        <ev:EmergencyClassification>
            <ev:EmergencyClass>General Emergency</ev:EmergencyClass>
            <ev:DateAndTimeOfDeclaration>2012-01-15T08:00:00Z</ev:DateAndTimeOfDeclaration>
            <ev:BasisForDeclaration>Loss of all electrical power</ev:BasisForDeclaration>
        </ev:EmergencyClassification>
        <ev:PlantStatus>
            <ev:CoreState>
                <ev:Criticality>
                    <ev:Status>Stopped</ev:Status>
                    <ev:StoppedAt>2012-01-15T08:00:00Z</ev:StoppedAt>
                </ev:Criticality>
            </ev:CoreState>
        </ev:PlantStatus>
        <ev:EventDescription>
            <html:p>Severe weather conditions triggered station blackout at 08:00
UTC.</html:p>
        </ev:EventDescription>
    </ev:EventInformation>
</irix:Report>
```

FIG. 4. Structure of the Event Information section of the IRIX Format.

II.3. The *Release* section

The following example (Fig. 5) illustrates the structure of the *Release* section of the IRIX Format.

```
<?xml version="1.0" encoding="UTF-8"?>
<irix:Report version="1.0" xmlns:irix="http://www.iaea.org/2012/IRIX/Format"
    xmlns:id="http://www.iaea.org/2012/IRIX/Format/Identification"
    xmlns:base="http://www.iaea.org/2012/IRIX/Format/Base"
    xmlns:html="http://www.w3.org/1999/xhtml">
    <id:Identification>                                                    [13 lines]
    <release:Release ValidAt="2012-01-15T10:00:00Z"
        xmlns:release="http://www.iaea.org/2012/IRIX/Format/ReleaseInformation">
        <release:ReleaseOccurrence>
            <release:ActualRelease>
                <release:Occurrence>Has Not Occurred</release:Occurrence>
            </release:ActualRelease>
            <release:FutureRelease>
                <release:Occurrence>Likely to Occur</release:Occurrence>
                <release:Compartment>Air</release:Compartment>
            </release:FutureRelease>
        </release:ReleaseOccurrence>
        <release:ReleaseToAir>
            <release:ReleasePhases>
                <release:ReleasePhase>
                    <release:Occurrence>Projected - Likely to Occur</release:Occurrence>
                    <release:ReleaseRoute>Release from Containment</release:ReleaseRoute>
                    <release:ReleaseHeight>
                        <release:Base Unit="m">50</release:Base>
                    </release:ReleaseHeight>
                    <release:NuclideReleases>
                        <release:NuclideRelease>
                            <release:NuclideCombination>I-131(G)</release:NuclideCombination>
                            <release:Activity Unit="Bq">1e9</release:Activity>

<release:MethodOfDetermination>Other</release:MethodOfDetermination>
                        </release:NuclideRelease>
                        <release:NuclideRelease>
                            <release:NuclideCombination>I-131(P)</release:NuclideCombination>
                            <release:Activity Unit="Bq">1e10</release:Activity>

<release:MethodOfDetermination>Other</release:MethodOfDetermination>
                        </release:NuclideRelease>
                    </release:NuclideReleases>
                </release:ReleasePhase>
            </release:ReleasePhases>
        </release:ReleaseToAir>
    </release:Release>
</irix:Report>
```

FIG. 5. Structure of the Release section of the IRIX Format.

II.4. The *Meteorology* section

The following example (Fig. 6) illustrates the structure of the *Meteorology* section of the IRIX Format. The example illustrates how meteorological conditions observed during the past six hours and forecasted for the next six hours can be reported.

```
<?xml version="1.0" encoding="UTF-8"?>
<irix:Report version="1.0" xmlns:irix="http://www.iaea.org/2012/IRIX/Format"
    xmlns:id="http://www.iaea.org/2012/IRIX/Format/Identification"
    xmlns:loc="http://www.iaea.org/2012/IRIX/Format/Locations"
    xmlns:base="http://www.iaea.org/2012/IRIX/Format/Base"
    xmlns:html="http://www.w3.org/1999/xhtml">
    <id:Identification>                                                    [13 lines]
    <meteo:Meteorology ValidAt="2012-01-15T12:00:00Z"
        xmlns:meteo="http://www.iaea.org/2012/IRIX/Format/Meteorology">
        <meteo:MeteoRecord>
            <meteo:Type>Observation</meteo:Type>
            <loc:Location>
                <loc:GeographicCoordinates>
                    <loc:Latitude>60.403333</loc:Latitude>
                    <loc:Longitude>18.166667</loc:Longitude>
                </loc:GeographicCoordinates>
            </loc:Location>
            <meteo:ValidForPeriod>
                <meteo:StartTime>2012-01-15T06:00:00Z</meteo:StartTime>
                <meteo:EndTime>2012-01-15T12:00:00Z</meteo:EndTime>
            </meteo:ValidForPeriod>
            <meteo:WindSpeed Unit="m/s">3</meteo:WindSpeed>
            <meteo:WindDirection Unit="DegreesFromNorth">45</meteo:WindDirection>
        </meteo:MeteoRecord>
        <meteo:MeteoRecord>
            <meteo:Type>Projection - Forecast</meteo:Type>
            <loc:Location>
                <loc:GeographicCoordinates>
                    <loc:Latitude>60.403333</loc:Latitude>
                    <loc:Longitude>18.166667</loc:Longitude>
                </loc:GeographicCoordinates>
            </loc:Location>
            <meteo:ValidForPeriod>
                <meteo:StartTime>2012-01-15T12:00:00Z</meteo:StartTime>
                <meteo:EndTime>2012-01-15T18:00:00Z</meteo:EndTime>
            </meteo:ValidForPeriod>
            <meteo:WindSpeed Unit="m/s">4</meteo:WindSpeed>
            <meteo:WindDirection Unit="DegreesFromNorth">45</meteo:WindDirection>
        </meteo:MeteoRecord>
    </meteo:Meteorology>
</irix:Report>
```

FIG. 6. Structure of the Meteorology section of the IRIX Format.

II.5. The *Consequences* section

The following example (Fig. 7) illustrates the structure of the *Consequences* section of the IRIX Format.

```
<?xml version="1.0" encoding="UTF-8"?>
<irix:Report version="1.0" xmlns:irix="http://www.iaea.org/2012/IRIX/Format"
    xmlns:id="http://www.iaea.org/2012/IRIX/Format/Identification"
    xmlns:base="http://www.iaea.org/2012/IRIX/Format/Base"
    xmlns:html="http://www.w3.org/1999/xhtml">
    <id:Identification>                                                    [13 lines]
    <cons:Consequences ValidAt="2012-01-15T10:00:00Z"
        xmlns:cons="http://www.iaea.org/2012/IRIX/Format/ConsequenceInformation">
        <cons:AreasAffected>
            <cons:AreaAffected>
                <cons:Occurrence>Actual - Confirmed</cons:Occurrence>
                <cons:Area>
                    <cons:Description>Areas located NW and N from site.</cons:Description>
                </cons:Area>
                <cons:Effect>
                    <cons:Description>Ambient gamma dose rate levels up to 0.4mSv/h measured.
                        Mainly ground shine.</cons:Description>
                </cons:Effect>
            </cons:AreaAffected>
            <cons:AreaAffected>
                <cons:Occurrence>Actual - Confirmed</cons:Occurrence>
                <cons:Area>
                    <cons:Description>Areas located NE, E, S and W from
site.</cons:Description>
                </cons:Area>
                <cons:Effect>
                    <cons:Description>Radiation levels normal.</cons:Description>
                </cons:Effect>
            </cons:AreaAffected>
        </cons:AreasAffected>
        <cons:NumbersOfCasualties>
            <cons:NumberOfCasualties>
                <cons:CasualtyType>Hospitalised</cons:CasualtyType>
                <cons:MemberOfGroup>Public</cons:MemberOfGroup>
                <cons:Number>21</cons:Number>
                <cons:MethodOfDetermination>Count</cons:MethodOfDetermination>
            </cons:NumberOfCasualties>
            <cons:NumberOfCasualties>
                <cons:CasualtyType>Hospitalised</cons:CasualtyType>
                <cons:MemberOfGroup>Emergency Services</cons:MemberOfGroup>
                <cons:Number>2</cons:Number>
                <cons:MethodOfDetermination>Count</cons:MethodOfDetermination>
            </cons:NumberOfCasualties>
            <cons:NumberOfCasualties>
                <cons:CasualtyType>Dead</cons:CasualtyType>
                <cons:Number>0</cons:Number>
            </cons:NumberOfCasualties>
        </cons:NumbersOfCasualties>
    </cons:Consequences>
</irix:Report>
```

FIG. 7. Structure of the Consequences section of the IRIX Format.

II.6. The *Response Actions* section

The following example (Fig. 8) illustrates the structure of the *Response Actions* section of the IRIX Format.

```
<?xml version="1.0" encoding="UTF-8"?>
<irix:Report version="1.0" xmlns:irix="http://www.iaea.org/2012/IRIX/Format"
    xmlns:id="http://www.iaea.org/2012/IRIX/Format/Identification"
    xmlns:base="http://www.iaea.org/2012/IRIX/Format/Base"
    xmlns:html="http://www.w3.org/1999/xhtml">
    <id:Identification>                                                    [13 lines]
    <act:ResponseActions ValidAt="2012-01-15T10:00:00Z"
        xmlns:act="http://www.iaea.org/2012/IRIX/Format/ResponseActions">
        <act:ProtectiveActions>
            <act:ProtectiveActionsTakenOrPlanned>Yes</act:ProtectiveActionsTakenOrPlanned>
            <act:ProtectiveAction>
                <act:TypeOfAction>Evacuation</act:TypeOfAction>
                <act:Status>Ordered</act:Status>
                <act:AreaSector>
                    <act:FromAngle Unit="DegreesFromNorth">0</act:FromAngle>
                    <act:TillAngle Unit="DegreesFromNorth">360</act:TillAngle>
                    <act:InnerRadius Unit="m">0</act:InnerRadius>
                    <act:OuterRadius Unit="m">2000</act:OuterRadius>
                </act:AreaSector>
            </act:ProtectiveAction>
            <act:ProtectiveAction>
                <act:TypeOfAction>Sheltering</act:TypeOfAction>
                <act:Status>Ordered</act:Status>
                <act:AreaSector>
                    <act:FromAngle Unit="DegreesFromNorth">0</act:FromAngle>
                    <act:TillAngle Unit="DegreesFromNorth">360</act:TillAngle>
                    <act:InnerRadius Unit="m">2000</act:InnerRadius>
                    <act:OuterRadius Unit="m">4000</act:OuterRadius>
                </act:AreaSector>
            </act:ProtectiveAction>
        </act:ProtectiveActions>
        <act:DescriptionOfActions>
            <html:p>
                National Emergency Operations Centre activated at 10:00 UTC
                following notification from the site.
            </html:p>
        </act:DescriptionOfActions>
    </act:ResponseActions>
</irix:Report>
```

FIG. 8. Structure of the Response Actions section of the IRIX Format.

II.7. The *Measurements* section

The following examples illustrate the structure of the *Measurements* section of the IRIX Format.

The example below (Fig. 9) illustrates the use of the Dose Rate element in the *Measurements* section of the IRIX Format for reporting several dose rate measurements performed at one time by several radiation monitoring stations.

```
<?xml version="1.0" encoding="UTF-8"?>
<irix:Report version="1.0" xmlns:irix="http://www.iaea.org/2012/IRIX/Format"
    xmlns:id="http://www.iaea.org/2012/IRIX/Format/Identification"
    xmlns:loc="http://www.iaea.org/2012/IRIX/Format/Locations"
    xmlns:base="http://www.iaea.org/2012/IRIX/Format/Base"
    xmlns:html="http://www.w3.org/1999/xhtml">
    <id:Identification>                                                    [13 lines]
    <mon:Measurements ValidAt="2012-01-15T10:00:00Z"
        xmlns:mon="http://www.iaea.org/2012/IRIX/Format/Measurements">
        <mon:DoseRate>
            <mon:DoseRateType>Gamma</mon:DoseRateType>
            <mon:MeasuringPeriod>
                <mon:StartTime>2012-01-15T09:00:00Z</mon:StartTime>
                <mon:EndTime>2012-01-15T10:00:00Z</mon:EndTime>
            </mon:MeasuringPeriod>
            <mon:Measurements>
                <mon:Measurement>
                    <loc:Location ref="MP1"/>
                    <mon:Value Unit="Sv/s">4.3e-7</mon:Value>
                </mon:Measurement>
                <mon:Measurement>
                    <loc:Location ref="MP2"/>
                    <mon:Value Unit="Sv/s">4.8e-7</mon:Value>
                </mon:Measurement>
                <mon:Measurement>                                          [3 lines]
            </mon:Measurements>
        </mon:DoseRate>
        <mon:DoseRate>
            <mon:DoseRateType>Gamma</mon:DoseRateType>
            <mon:MeasuringPeriod>
                <mon:StartTime>2012-01-15T10:00:00Z</mon:StartTime>
                <mon:EndTime>2012-01-15T11:00:00Z</mon:EndTime>
            </mon:MeasuringPeriod>
            <mon:Measurements>
                <mon:Measurement>
                    <loc:Location ref="MP1"/>
                    <mon:Value Unit="Sv/s">7.3e-7</mon:Value>
                </mon:Measurement>
                <mon:Measurement>
                    <loc:Location ref="MP2"/>
                    <mon:Value Unit="Sv/s">9.8e-7</mon:Value>
                </mon:Measurement>
                <mon:Measurement>                                          [3 lines]
            </mon:Measurements>
        </mon:DoseRate>
    </mon:Measurements>
    <loc:Locations>
        <loc:Location id="MP1">
            <loc:Name>Fantasy NPP Radiation Monitoring Post 1 (MP1)</loc:Name>
            <loc:GeographicCoordinates>
                <loc:Latitude>60.403300</loc:Latitude>
                <loc:Longitude>18.166602</loc:Longitude>
            </loc:GeographicCoordinates>
        </loc:Location>
        <loc:Location id="MP2">                                            [6 lines]
        <loc:Location id="MP3">                                            [6 lines]
    </loc:Locations>
</irix:Report>
```

FIG. 9. Use of the Dose Rate element in the Measurements section of the IRIX Format.

The example below (Fig. 10) illustrates the use of many of the optional elements of the Dose Rate element in the *Measurements* section of the IRIX Format.

```
<?xml version="1.0" encoding="UTF-8"?>
<irix:Report version="1.0" xmlns:irix="http://www.iaea.org/2012/IRIX/Format"
    xmlns:id="http://www.iaea.org/2012/IRIX/Format/Identification"
    xmlns:loc="http://www.iaea.org/2012/IRIX/Format/Locations"
    xmlns:base="http://www.iaea.org/2012/IRIX/Format/Base"
    xmlns:html="http://www.w3.org/1999/xhtml">
    <id:Identification>                                                    [13 lines]
    <mon:Measurements ValidAt="2012-01-15T10:00:00Z"
        xmlns:mon="http://www.iaea.org/2012/IRIX/Format/Measurements">
        <mon:DoseRate>
            <mon:DoseRateType>Gamma</mon:DoseRateType>
            <mon:MeasuringPeriod>
                <mon:StartTime>2012-01-15T09:00:00Z</mon:StartTime>
                <mon:EndTime>2012-01-15T09:00:00Z</mon:EndTime>
            </mon:MeasuringPeriod>
            <mon:ApparatusType>Gamma - Solid State Detector</mon:ApparatusType>
            <mon:Description>This dataset contains measurement data collected using a portable
gamma dose rate meter for purposes of verifying the readings reported by the stationary
detector at Fantasy NPP MP1.</mon:Description>
            <mon:Measurements>
                <mon:Measurement>
                    <loc:Location>
                        <loc:Name>Fantasy NPP Radiation Monitoring Post 1 (MP1)</loc:Name>
                        <loc:GeographicCoordinates>
                            <loc:Latitude>60.403300</loc:Latitude>
                            <loc:Longitude>18.166602</loc:Longitude>
                        </loc:GeographicCoordinates>
                        <loc:Municipality>Fantasy Municipality</loc:Municipality>
                        <loc:AdministrativeUnit>Fantasy State</loc:AdministrativeUnit>
                        <loc:Country>SE</loc:Country>
                        <loc:AccuracyType>Exact Location</loc:AccuracyType>
                        <loc:Description>This monitoring location is located at the north-west
site boundary of the Fantasy NPP site.</loc:Description>
                    </loc:Location>
                    <loc:LocationOffset>
                        <loc:Distance Unit="m">5</loc:Distance>
                        <loc:Direction Unit="DegreesFromNorth">360</loc:Direction>
                    </loc:LocationOffset>
                    <mon:Value Constraint="LT" Unit="Sv/s">5.0e-10</mon:Value>
                    <mon:Uncertainty Type="DL" Unit="Sv/s">5.0e-10</mon:Uncertainty>
                    <mon:Timebase>PT10S</mon:Timebase>
                    <mon:Background>
                        <mon:Value Unit="Sv/s">4.0e-7</mon:Value>
                        <mon:Uncertainty Unit="Sv/s" Type="SD">1.0e-8</mon:Uncertainty>
                        <mon:Timebase>PT10S</mon:Timebase>
                    </mon:Background>
                    <mon:Validated>Not Validated</mon:Validated>
                    <mon:Description>The quality of this measurement value has not yet been
checked.</mon:Description>
                </mon:Measurement>
            </mon:Measurements>
        </mon:DoseRate>
    </mon:Measurements>
</irix:Report>
```

FIG. 10. Use of many of the optional elements of the Dose Rate element in the Measurements section of the IRIX Format.

The example below (Fig. 11) illustrates the use of the Sample element in the *Measurements* section of the IRIX Format for reporting several nuclide concentration measurements performed on different sample types (air and deposition).

```
<?xml version="1.0" encoding="UTF-8"?>
<irix:Report version="1.0" xmlns:irix="http://www.iaea.org/2012/IRIX/Format"
    xmlns:id="http://www.iaea.org/2012/IRIX/Format/Identification"
    xmlns:loc="http://www.iaea.org/2012/IRIX/Format/Locations"
    xmlns:base="http://www.iaea.org/2012/IRIX/Format/Base"
    xmlns:html="http://www.w3.org/1999/xhtml">
    <id:Identification>                                                    [13 lines]
    <mon:Measurements ValidAt="2012-01-15T10:00:00Z"
        xmlns:mon="http://www.iaea.org/2012/IRIX/Format/Measurements">
        <mon:Sample>
            <mon:SampleType>A11</mon:SampleType><!-- A11 = Outdoor Air -->
            <mon:SamplingPeriod>
                <mon:StartTime>2012-01-15T08:00:00Z</mon:StartTime>
                <mon:EndTime>2012-01-15T09:00:00Z</mon:EndTime>
            </mon:SamplingPeriod>
            <loc:Location ref="L1"/>
            <mon:Measurements>
                <mon:Measurement>
                    <mon:Nuclide>I-131</mon:Nuclide>
                    <mon:Value Unit="Bq/m3">7.5e7</mon:Value>
                </mon:Measurement>
                <mon:Measurement>
                    <mon:Nuclide>Cs-137</mon:Nuclide>
                    <mon:Value Unit="Bq/m3">3.5e6</mon:Value>
                </mon:Measurement>
                <mon:Measurement>                                          [3 lines]
            </mon:Measurements>
        </mon:Sample>
        <mon:Sample>
            <mon:SampleType>A40</mon:SampleType><!-- A40 = Deposition -->
            <mon:SamplingPeriod>
                <mon:StartTime>2012-01-15T08:00:00Z</mon:StartTime>
                <mon:EndTime>2012-01-15T09:00:00Z</mon:EndTime>
            </mon:SamplingPeriod>
            <loc:Location ref="L1"/>
            <mon:Measurements>
                <mon:Measurement>
                    <mon:Nuclide>I-131</mon:Nuclide>
                    <mon:Value Unit="Bq/m2">1.5e2</mon:Value>
                </mon:Measurement>
                <mon:Measurement>
                    <mon:Nuclide>Cs-137</mon:Nuclide>
                    <mon:Value Unit="Bq/m2">7.1e1</mon:Value>
                </mon:Measurement>
                <mon:Measurement>                                          [3 lines]
            </mon:Measurements>
        </mon:Sample>
    </mon:Measurements>
    <loc:Locations>
        <loc:Location id="L1">                                             [5 lines]
    </loc:Locations>
</irix:Report>
```

FIG. 11. Use of the Sample element in the Measurements section of the IRIX Format.

The example below (Fig. 12) illustrates the use of many of the optional elements of the Sample element in the *Measurements* section of the IRIX Format.

```
<?xml version="1.0" encoding="UTF-8"?>
<irix:Report version="1.0" xmlns:irix="http://www.iaea.org/2012/IRIX/Format"
    xmlns:id="http://www.iaea.org/2012/IRIX/Format/Identification"
    xmlns:loc="http://www.iaea.org/2012/IRIX/Format/Locations"
    xmlns:base="http://www.iaea.org/2012/IRIX/Format/Base"
    xmlns:html="http://www.w3.org/1999/xhtml">
    <id:Identification>                                                    [13 lines]
    <mon:Measurements ValidAt="2012-01-15T10:00:00Z"
        xmlns:mon="http://www.iaea.org/2012/IRIX/Format/Measurements">
        <mon:Sample>
            <mon:SampleType>A11</mon:SampleType><!-- A11 = Outdoor Air -->
            <mon:SamplingPeriod>
                <mon:StartTime>2012-01-01T00:00:00Z</mon:StartTime>
                <mon:EndTime>2012-01-31T24:00:00Z</mon:EndTime>
            </mon:SamplingPeriod>
            <loc:Location>
                <loc:Name>Country of Fantasyland</loc:Name>
                <loc:Country>FL</loc:Country>
            </loc:Location>
            <mon:ValueType>Highest Value</mon:ValueType>
            <mon:Volume Unit="m3">1000</mon:Volume>
            <mon:SampleTreatment>No Treatment</mon:SampleTreatment>
            <mon:Description>Some remarks relating to this measurement data
set.</mon:Description>
            <mon:Measurements>
                <mon:Measurement>
                    <mon:Nuclide>I-131</mon:Nuclide>
                    <mon:Value Unit="Bq/m3">5.0e5</mon:Value>
                    <mon:Uncertainty Type="%" Unit="%" Constraint="LT">10</mon:Uncertainty>
                    <mon:Timebase>P1D</mon:Timebase><!-- 1 day -->
                    <mon:Background>
                        <mon:Value Unit="Bq/m3">5.0e5</mon:Value>
                        <mon:Uncertainty Type="DL" Unit="Bq/m3">5.0e5</mon:Uncertainty>
                        <mon:Timebase>P1D</mon:Timebase>
                        <mon:Method>Averaging daily measurements taken at this location in the
last 12 months.</mon:Method>
                    </mon:Background>
                    <mon:MeasuringPeriod>
                        <mon:StartTime>2012-02-01T00:00:00Z</mon:StartTime>
                        <mon:EndTime>2012-02-01T01:00:00Z</mon:EndTime>
                    </mon:MeasuringPeriod>
                    <mon:ReferenceDateAndTime>2012-02-01T00:00:00Z</mon:ReferenceDateAndTime>
                    <mon:ApparatusType>Gamma - NaI Detector</mon:ApparatusType>
                    <mon:Validated>Validated</mon:Validated>
                    <mon:Laboratory>Fantasy Lab, Fantasyland</mon:Laboratory>
                    <mon:Description>Some remarks relating to this measurement
value.</mon:Description>
                </mon:Measurement>
                <mon:Measurement>                                          [3 lines]
            </mon:Measurements>
        </mon:Sample>
    </mon:Measurements>
</irix:Report>
```

FIG. 12. Use of many of the optional elements of the Sample element in the Measurements section of the IRIX Format.

The example below (Fig. 13) illustrates the use of the Sample element in the *Measurements* section of the IRIX Format for reporting environmental dose rate measurements.

```
<?xml version="1.0" encoding="UTF-8"?>
<!--                                                                    [3 lines]
<irix:Report version="1.0" xmlns:irix="http://www.iaea.org/2012/IRIX/Format"
    xmlns:id="http://www.iaea.org/2012/IRIX/Format/Identification"
    xmlns:loc="http://www.iaea.org/2012/IRIX/Format/Locations"
    xmlns:base="http://www.iaea.org/2012/IRIX/Format/Base"
    xmlns:html="http://www.w3.org/1999/xhtml">
    <id:Identification>                                                 [13 lines]
    <mon:Measurements ValidAt="2012-01-15T10:00:00Z"
        xmlns:mon="http://www.iaea.org/2012/IRIX/Format/Measurements">
        <mon:Sample>
            <mon:SampleType>A5</mon:SampleType><!-- A5 = "External Radiation" -->
            <mon:SamplingPeriod>
                <mon:StartTime>2012-01-15T09:00:00Z</mon:StartTime>
                <mon:EndTime>2012-01-15T10:00:00Z</mon:EndTime>
            </mon:SamplingPeriod>
            <loc:Location ref="MP1"/>
            <mon:Measurements>
                <mon:Measurement>
                    <mon:NuclideCombination>T-Gamma</mon:NuclideCombination>
                    <mon:Value Unit="Sv/s">4.3e-7</mon:Value>
                </mon:Measurement>
            </mon:Measurements>
        </mon:Sample>
        <mon:Sample>                                                    [14 lines]
    </mon:Measurements>
    <loc:Locations>                                                     [15 lines]
</irix:Report>
```

FIG. 13. Use of the Sample element in the Measurements section of the IRIX Format for reporting environmental dose rate measurements.

II.8. The *Medical Information* section

The following example (Fig. 14) illustrates the structure of the *Medical Information* section of the IRIX Format.

```
<?xml version="1.0" encoding="UTF-8"?>
<irix:Report version="1.0" xmlns:irix="http://www.iaea.org/2012/IRIX/Format"
    xmlns:id="http://www.iaea.org/2012/IRIX/Format/Identification"
    xmlns:base="http://www.iaea.org/2012/IRIX/Format/Base"
    xmlns:html="http://www.w3.org/1999/xhtml">
    <id:Identification>                                                    [13 lines]
    <medical:MedicalInformation ValidAt="2012-01-15T10:00:00Z"
        xmlns:medical="http://www.iaea.org/2012/IRIX/Format/MedicalInformation">
        <medical:PersonsDiagnosed>
            <medical:PersonDiagnosed>
                <medical:Identity>
                    <medical:Code>P1000</medical:Code>
                    <medical:Description>Person is an on-site response personnel who
participated in initial accident mitigation operations.</medical:Description>
                </medical:Identity>
                <medical:HealthEffectsDiagnosed>
                    <medical:HealthEffectDiagnosed>
                        <medical:TypeOfHealthEffect>Acute Radiation
Syndrome</medical:TypeOfHealthEffect>
                        <medical:DiagnosticResult>Definite</medical:DiagnosticResult>
                    </medical:HealthEffectDiagnosed>
                </medical:HealthEffectsDiagnosed>
                <medical:HealthConsequencesPrognosed>
                    <medical:HealthConsequencePrognosed>

<medical:TypeOfHealthConsequence>Fatality</medical:TypeOfHealthConsequence>
                        <medical:PrognosedOccurrence>Possible</medical:PrognosedOccurrence>
                    </medical:HealthConsequencePrognosed>
                </medical:HealthConsequencesPrognosed>
                <medical:DoseAssessments>
                    <medical:AssessedDose>
                        <medical:TypeOfDose>Whole Body</medical:TypeOfDose>
                        <medical:DoseValue Unit="Sv">4.0e0</medical:DoseValue>
                    </medical:AssessedDose>
                </medical:DoseAssessments>
            </medical:PersonDiagnosed>
        </medical:PersonsDiagnosed>
    </medical:MedicalInformation>
</irix:Report>
```

FIG. 14. Structure of the Medical Information section of the IRIX Format.

II.9. The *Media Information* section

The following example (Fig. 15) illustrates the structure of the *Media Information* section of the IRIX Format.

```
<?xml version="1.0" encoding="UTF-8"?>
<irix:Report version="1.0" xmlns:irix="http://www.iaea.org/2012/IRIX/Format"
    xmlns:id="http://www.iaea.org/2012/IRIX/Format/Identification"
    xmlns:base="http://www.iaea.org/2012/IRIX/Format/Base"
    xmlns:html="http://www.w3.org/1999/xhtml">
    <id:Identification>                                                    [13 lines]
    <media:MediaInformation ValidAt="2012-01-15T10:00:00Z"
        xmlns:media="http://www.iaea.org/2012/IRIX/Format/MediaInformation">
        <media:PublicInformationContacts>
            <base:PersonContactInfo>
                <base:Name>Mr. Spokes Person</base:Name>
                <base:PhoneNumber>+123456789</base:PhoneNumber>
                <base:EmailAddress>spokes.person@ca.org</base:EmailAddress>
            </base:PersonContactInfo>
        </media:PublicInformationContacts>
        <media:PublicWebsiteURL>http://www.ca.org/press/2012/accident</media:PublicWebsiteURL>
    </media:MediaInformation>
</irix:Report>
```

FIG. 15. Structure of the Media Information section of the IRIX Format.

II.10. The *Requests* section

The following example (Fig. 16) illustrates the structure and use of the *Requests* section of the IRIX Format.

```
<?xml version="1.0" encoding="UTF-8"?>
<irix:Report version="1.0" xmlns:irix="http://www.iaea.org/2012/IRIX/Format"
    xmlns:id="http://www.iaea.org/2012/IRIX/Format/Identification"
    xmlns:base="http://www.iaea.org/2012/IRIX/Format/Base"
    xmlns:html="http://www.w3.org/1999/xhtml">
    <id:Identification>
        <id:OrganisationReporting>iaea.org</id:OrganisationReporting>
        <id:DateAndTimeOfCreation>2012-01-15T10:00:00Z</id:DateAndTimeOfCreation>
        <id:ReportContext>Exercise</id:ReportContext>
        <id:ReportUUID>550e8400-e29b-41d4-a716-446655440000</id:ReportUUID>
        <id:Addressees>
            <id:Addressee>ca.org</id:Addressee>
        </id:Addressees>
        <id:Identifications>
            <base:OrganisationContactInfo>
                <base:Name>UN International Atomic Energy Agency</base:Name>
                <base:OrganisationID>iaea.org</base:OrganisationID>
                <base:Country>00</base:Country>
                <base:PhoneNumber>+43123456789</base:PhoneNumber>
            </base:OrganisationContactInfo>
        </id:Identifications>
    </id:Identification>
    <req:Requests xmlns:req="http://www.iaea.org/2012/IRIX/Format/Requests">
        <req:Request>
            <req:RequestUUID>550e8400-e29b-41d4-a716-441234567890</req:RequestUUID>
            <req:TypeOfRequest>Request for Information</req:TypeOfRequest>
            <req:RequestSubject>Venting at Unit 1</req:RequestSubject>
            <req:RequestText>
                <html:p>Requesting information regarding plans to vent containment at
                    Fantasy NPP Unit 1.</html:p>
            </req:RequestText>
        </req:Request>
    </req:Requests>
</irix:Report>
```

FIG. 16. Structure and use of the Requests section of the IRIX Format.

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