The Nordic Manual (NORMAN): Co-operation between the Nordic Authorities in Response to and Preparedness for Nuclear and Radiological Emergencies and Incidents

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Denmark:	Danish Emergency Management Agency (DEMA)
	National Institute of Radiation Protection (SIS)
Finland:	Radiation and Nuclear Safety Authority (STUK)
Iceland:	Icelandic Radiation Safety Authority (GR)
Norway:	Norwegian Radiation Protection Authority (NRPA)
Sweden:	Swedish Radiation Safety Authority (SSM)

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1 SCOPE AND BACKGROUND

This document describes practical arrangements and co-operation to fulfil obligations stated in bilateral agreements between the Nordic states (see Appendix 1). These arrangements also apply for response to events or threats of malicious use of radioactive material and threats or malevolent acts concerning nuclear facilities. Furthermore, small scale events, such as rumours and minor incidents, with consequences limited to a public concern and interest by the media, and/or a need for exchange of technical information between nuclear and radiation safety regulatory bodies, have been included. The arrangements in this document include all phases of events, including intermediate and recovery phases.

Bilateral agreements between the Nordic states contain obligations regarding early notification of abnormal events or detection of abnormal levels of radiation and exchange of information. The Nordic states have also ratified the IAEA Early Notification and Assistance Conventions. Denmark, Finland and Sweden, as members of the European Union, are part of the EC communication system (ECURIE). In addition, there are also other bilateral agreements that define the obligations of communication and co-operation. All relevant conventions and agreements are listed in Appendix 1.

This document takes into consideration the current international development concerning response to and preparedness for nuclear and radiological incidents and emergencies as well as other important relevant international aspects. Since late 1980s, when the international conventions and bilateral agreements were signed, international guidelines[1] issued by the IAEA have extended the scope for notification and the nature of events concerned. Today regulatory bodies are expected to notify international counterparts not only of emergencies that lead, or may lead, to transnational radiological consequences, but of any event that has implications for another state or its interests independent of the cause of the event (accident, negligence or deliberate act).

The international developments taken into account include IAEA guides on protective measures during emergencies and first responders and medical response and documents by Heads of the European Radiological Competent Authorities (HERCA) for improvement of compatible response in European countries and increase of mutual understanding between neighbouring countries.

There is a long history of the Nordic countries to develop joint approaches. The latest is the generic guide of the Nordic countries concerning population and functions of society in case of nuclear or radiological emergencies. The guide includes jointly agreed criteria for different protective actions during nuclear or radiological emergencies.

[1] Especially IAEA Safety Standard series No GSR Part 7 Preparedness and Response for a Nuclear or Radiological Emergency; Safety Requirements and EPR-IEComm 2012 Operations Manual for Incident and Emergency Communication

2 CO-OPERATION IN RESPONSE PHASE

2.1 Communication policy between the Nordic authorities during emergencies

Taking into account the bilateral and multilateral agreements between the Nordic states, to improve information flow between the Nordic authorities[2] and to harmonise the Nordic policy with the IAEA guidelines, in particular the Operations Manual for Incident and Emergency Communication (IEComm), the IAEA Safety Requirements for Preparedness and Response for a Nuclear or Radiological Emergency (GSR Part 7) and the IAEA Safety Guide on Arrangements for Preparedness for a Nuclear or Radiological Emergency (GS-G-2.1), the following principles are highly recommended when communicating during incidents and emergencies:

1. To make information flow more efficient, information is communicated to all Nordic authorities (list in section 2.1)
    - simultaneously, indicating that the authorities of other than the states involved are also informed,
    - without prior request.
2. To institutionalise notification and exchange of information
    - communication is not dependent on “personal” contacts but on official emergency contact points ,
    - it is the responsibility of each authority to communicate any change of contact information details without delay,
    - contact information and means of communication as described in chapter 3.2 in this document are used.
3. To make contacts of urgent information quick and simple
    - procedures for informing the Nordic authorities is independent of the time of day,
    - the methods for contacting any Nordic authority are compatible.
4. To avoid misunderstanding and misinterpretations
    - relevant and important information is delivered in writing; the use of video conference technique, telephone or other means of communication are only complementary,
    - information delivered to the other authorities are processed, focusing on conclusions and decisions; detailed information is made available,
    - the language used in communication between the authorities regarding incidents and emergencies is English. Supplementary information such as press releases and summary reports may be submitted in other languages.
5. Confidentiality
    - information marked by the sender as “authority use only” shall not be made available to a third party without the consent of the originator.
    - in accordance with the Agreement on the Exchange of Radiation Data between the Baltic Sea States (Appendix 1), unverified data is declared as such, and parties receiving unverified data and information shall not make these data available to a third party without the consent of the originator.

[2] The term “Nordic authorities” covers all authorities within the NEP group. This should not be confused with the term NCA as defined in the IAEA IEComm.

2.2 Notification and exchange of information

2.2.1 Threshold of dissemination of information

The principles for when to exchange information and notify other Nordic authorities are specified in the IAEA Convention on early notification and bilateral agreements between the Nordic states as:

1. in case of a transnational emergency, see IAEA safety standards requirements (GS-R-2) and guides (IEComm).

   Transnational emergency, as defined in the IAEA safety standards requirements, is a nuclear or radiological emergency of actual, potential or perceived radiological significance for more than one state. This includes:
   - *a significant transboundary release of radioactive material (however, a transnational emergency does not necessarily imply a significant transboundary release of radioactive material)*
   - *a general emergency at a facility or other event that could result in a significant transboundary release (atmospheric or aquatic)*
   - *discovery of the loss or illicit removal of a dangerous source that has been transported across or is suspected of having been transported across a national border*
   - *an emergency resulting in significant disruption to international trade or travel*
   - *an emergency warranting the taking of protective actions for foreign citizens or embassies in the state in which it occurs*
   - *an emergency resulting in or potentially resulting in severe deterministic effects and involving a fault and/or problem (such as in equipment or software) that could have serious implications for international safety*
   - *an emergency resulting in, or potentially resulting in, great concern among the population of more than one state owing to the actual or perceived radiological hazard.*

2. in case of alert or advisory level communication as defined in the ECURIE Communication Instructions (version 3.0, 2012)

   Alert level, in case of
   - *an actual emergency exposure situation is being managed, and urget protective actions are being considered or implemented (i.e. evacuation, sheltering, issue of stable iodine)*
   - *maximum permitted levels in food/animal feed are liable to be exceeded over an extended area*
   - *abnormal significantly raised levels of radiation are measured in the environment (in the case of an event situated outside the Member State or of unknown origin)*

Advisory level

- *cases of malicious or criminal use of radioactive material*
- *loss of theft of high-activity radiation sources or nuclear material*
- *unexpected finding of high-activity radiation sources or nuclear material*
- *events for which an INES level 3 (or more serious) notification is being considered*
- *transport incident involving radioactivity*
- *major radiation incidents in medical establishments, including unintended exposures in radiation therapy*
- *information necessary for rumour control, including any events (and non-events) which receive excessive media coverage*
- *information necessary to the protection of the EU internal market (i.e. detection in customs of consumer goods not suitable for the market due to high level of radioactivity)*

3. in case of
   - an abnormal safety related event at a nuclear facility which could have offsite impact, or
   - detection of abnormal levels of fresh fallout, resulting in need for activating response or informing the public.

In addition to these principles, the Nordic authorities have, under the framework of the NEP-co-operation, agreed to notify each other

4. whenever a Nordic authority receives/has information which is considered to be of urgent interest to the other Nordic authorities.

   Examples of situations when information should also be exchanged between the Nordic authorities include:
   - events not defined in agreements and conventions (e.g. threats or rumours of malevolent acts);
   - incidents below agreement notification level but of media interest;
   - detection of minor amounts of fresh fallout indicating exceptional releases;
   - rumours, verified to be rumours, of a radiation or nuclear event.

   Naturally, situations will occur when it is not clear whether it is appropriate to notify other Nordic authorities or not. In those cases the philosophy should be "*it is better to notify one time too often than the other way around*".

   Guidelines for exchange of information between Nordic authorities during unusual events are provided in Appendix 2.

2.2.2 Communication means

National Warning Points as defined in the IAEA IEComm, ECURIE and bilateral agreements shall be used during initial notification of situations described in 3.2.1. Each state shall operate a 24-hour fax contact point.

1. Initial notification
   Initial notification to Nordic countries follows the IAEA guidelines. Fax and USIE alerting capabilities are used for initial notification. The forms to be used for this initial communication are as defined in the IAEA IEComm. Notifications are sent to National Warning Points (NWP) in all Nordic states.

2. Follow up information and other information of potential interest
   A non-personal e-mail address, urgent.mail, is used for exchange of follow up information during emergency situations except when the response organization has provided non-personal contact details to be used for the duration of the incident. 24-hour fax will function as a backup. Supplementary information can also be made available on protected websites established for emergency purposes (USIE). This applies to all responding countries.

3. Audio/videoconferencing
   The Nordic authorities may during an emergency organise audio/video conferences among themselves or take part in conferences organised by the Commission or the IAEA. The main objective is to agree upon joint approach of actions, share information of national response and expert discussions on assessments, prognosis, et cetra.

4. Public communication
   When exchanging information on public communication, authorities should use the non-personal email addresses of the information units in order to ensure that communication is independent of the presence of specific individuals.

   All updated news items will be issued on ordinary web pages of the authorities. All authorities should subscribe to the other authorities' news distribution systems. News can also be made available on protected websites dedicated to be used during incidents and emergencies.

5. Liaison experts
   It is possible, upon mutual agreement, for each Nordic authority to send liaison experts to the authority in a Nordic accident state in order to increase the understanding of the situation and assist in communication and transmission of emergency information and data to home base. Details will be agreed on before the actual deployment. The roles and tasks of liaison experts are described in Appendix 3.

   When Nordic countries send experts to embassies in accident country, whether in Nordic country or outside, they should aim to cooperate and exchange information.

2.2.3 Public communication

Besides news items subjected to the media and public, exchange of information on public communication between the Nordic authorities should comprise information about how and when other news related products are issued. It would be beneficial to alert Nordic countries on relevant media and social media issues, i.e. false rumours.

2.3 Co-operation and co-ordination of actions

2.3.1 Co-operation regarding safety assessments and protective actions

In cases of serious emergencies or situations with any kind of possible transboundary impact, it is important that authorities deal with the situation in co-operation with the authorities in neighbouring states. Below are some examples:

- Assessments of the situation and decisions regarding protective actions may affect decisions in another state. It is therefore important that such decisions are communicated among the neighbouring states.

- When it comes to definition of risk areas, different states use different models and input parameters for dispersion calculations. This, in turn, may lead to slightly different results from the calculations. Therefore it is valuable, if time allows, to compare the calculations made by other authorities before decisions are being made regarding protective actions and information is disseminated to the general public.

- All severe accidents and situations have international implications in a sense that all states have interests almost anywhere in the world and an ambition to protect these interests. These include citizens living in the accident state, tourism, trade, transport, travel and production.[3] If an incident or emergency takes place in a far-off country from the Nordic states' point of view, the decisions should be harmonised in the Nordic states when the expected consequences are similar.

To meet the above mentioned expectations, the Nordic authorities should strive for compatible decisions. The responsible authorities in a state should be able to explain what decisions other Nordic states have made and the reasons why. The Nordic authorities have agreed the following:

- Promptly and without prior request inform other Nordic authorities of recommendations on actions or non-actions. The information should be accompanied by relevant assessment results.

- If decisions on e.g. protective actions are made based on other factors than radiation consequences and without prior recommendation from the competent authority in that state, other Nordic authorities should be informed as soon as the competent authority in that state becomes aware of actions decided. This might especially be the case with the so called light countermeasures[4].

- Information and advise delivered to the own embassy(ies) in the affected country(ies) should be shared among the Nordic authorities and, if time allows, there should be an attempt to coordinate the information content.

[3] These are called light countermeasures
[4] E.g. actions related to tourism, trade, transport, travel and production

- If any Nordic authority gets new information directly from affected countries by e.g. communicating with competent authorities of those countries or send experts to the affected countries, this information should be shared to other Nordic authorities.

- If no information is distributed, the other Nordic authorities should rely on there having been no new information available or no recommendations regarding protection of own citizens, production and trade in a potential hazard area.

2.3.2 Additional exchange of information of an urgent nature between the Nordic authorities and Russian nuclear installations

As initial information from an urgent situation in a nearby nuclear installation is limited, an acute need will arise to contact the possible event site for verification and further information. This will probably result in several phone calls to the site in question as well as calls between the Nordic authorities. Experience has shown a need for defining and co-ordinating the response of the Nordic authorities. It is also important for the Russian authorities to be aware of the response actions made in the Nordic states.

The following procedures are adopted by all Nordic authorities:

1. The event site shall be contacted according to the list below:

Message from	**Prime state**
Leningrad NPP	Finland
Kola NPP	Finland
Murmansk area	Norway

   The other Nordic authorities get more information by contacting the prime state.

2. The prime state will immediately, even before new information is available, inform the other Nordic authorities about its actions to contact the event site and the authorities in the country in question.

3. As soon as further information has been obtained, the prime state will send it to all Nordic authorities without delay or prior request. All the other Nordic authorities, as well, will share the new information received via bilateral contacts.

2.4 Assistance

All states are required to prepare and dedicate resources to respond to the consequences of a nuclear or radiological incident/emergency. When the resources and capabilities required to respond to a nuclear or radiological incident/emergency are beyond the capacity of a state, international assistance may be requested. In October 1963, Nordic countries signed an agreement to assist each other in case of radiological hazards. In addition, all Nordic states have ratified the

Convention on Assistance in the case of a Nuclear Accident or a Radiological Emergency. (Appedix 1)

Requests for assistance can be made directly from one Nordic state to another on the basis of the Nordic mutual assistance agreement. Requests for assistance can also be made directly from one state to another or to IAEA, on the basis of the Assistance Convention. The Nordic states follow the international procedures as described in the document IAEA Response Assistance Network, EPR-RANET 2013 and there is no need for additional Nordic ones.

Traditionally 'International Assistance' has been understood to be something physical going from one state to another, like experts, equipment or material. The term 'assistance' can also be extended to cover additional forms of aid which do not require a physical presence in the accident state, like radiation protection advice, assessments, data analysis and interpretation, information on emergency situation etc., which can be provided as external based support from distance with modern communication technology.

3 CO-OPERATION IN EMERGENCY PREPAREDNESS PHASE

3.1 Nordic Working Group of Emergency Preparedness (NEP)

Chiefs of the Nordic radiation protection and nuclear safety authorities established in 1993 a work group (NEP) for co-operation, co-ordination, exchange of information and assistance in the field of emergency preparedness and response. NEP's tasks are:

- To exchange information, experience and good practice between the Nordic nuclear and radiation safety authorities on ongoing and planned projects and work in the field of nuclear and radiological emergency preparedness and response.

- To take initiatives and make proposals to Chiefs Meeting[5] areas when NEP finds that joint projects related to emergency matters should be carried out. To carry out approved tasks by itself or follow up on initialised and finalised projects.

- To co-ordinate and improve mechanisms and arrangements for notification, information exchange, coordination of protective actions and assistance between the Nordic authorities[6] involved in emergency situations.

- To follow and cooperate in the implementation of Nordic and international policies and guidance in Nordic countries.

- To review the use of communication tools for emergency situations and carry out tests on a regular basis.

[5] Regular meeting of the chiefs of the Nordic radiation protection and nuclear safety authorities.
[6] The term "Nordic authorities" covers all authorities within the NEP group.

- To follow and, when beneficial and possible, coordinate participation in and positions related to actively taking part in the Nordic and international development in the field of nuclear and radiological emergency preparedness and response.

- To communicate, co-operate and co-ordinate, where appropriate, the implementation of international standards and guidelines into national arrangements in the Nordic states.

A work plan is made for a two-year period and given for approval to the Chiefs Meeting.

Emergency contact information details are kept continuously up-to-date by NEP members. Even temporary short term changes shall be communicated.

The members of NEP consist of representatives from all Nordic radiation protection and nuclear safety authorities which are centrally involved during relevant incidents or emergencies. Each authority nominates its representative(s). The participating authorities are:

Denmark:	Danish Emergency Management Agency (DEMA)
	National Institute of Radiation Protection (SIS)
Finland:	Radiation and Nuclear Safety Authority (STUK)
Iceland:	Icelandic Radiation Safety Authority (GR)
Norway:	Norwegian Radiation Protection Authority (NRPA)
Sweden:	Swedish Radiation Safety Authority (SSM)

The entire NEP group typically meets twice a year, in spring and in autumn. At the meetings, ad hoc groups may be formed and tasked to carry out specific projects or assignments.

The chairmanship and secretariat follow a country wise rotation regime[7]. The chairman and secretary serve for two years and the term begins on first of January.

The representatives in NEP are nominated by the participating authorities. The general objective is continuity but individual representatives may be replaced during the terms as deemed appropriate by the authorities.

There is a strong will for improving consistent response, co-ordination and co-operation on an international level of emergency related issues. Nordic authorities actively take part in work carried out in several work groups/committees at an international level and form and promote Nordic positions and perspectives when appropriate. The Nordic members of work groups/committees keep other Nordic authorities informed through NEP on the progress of the work. Furthermore, the Nordic authorities make, where relevant, joint statements on the outcomes of the work. As practical examples:

- IAEA Guidance (safety requirements, safety guides, technical documents)
- IAEA and EU guidance (IEComm, ECURIE) for fulfilling obligations set by the international conventions and for the EU member states set by the Council Decisions.

IAEA Action Plan on Nuclear Safety was drafted and approved by the IAEA Board of Governors and the IAEA General Conference after the Fukushima accident in 2011 and includes also many

[7] Finland, Norway, Sweden, Denmark and Iceland.

suggestions from earlier IAEA International Action Plan for Strengthening International Preparedness and Response Systems for Nuclear and Radiological Emergencies. The actions on emergency preparedness in the report include topics on assistance and expanded mandate of the IAEA with respect to assessment of the on-site situation. The outcomes of the Action Plan will affect Nordic and national communication arrangements during emergencies as well as requests/provisions of assistance during emergencies. NEP will co-operate with regards to the implementation of the new arrangements into national systems.

NEP follows closely the work carried out e.g. by the HERCA-WGE, OECD/NEA, EU (in particular non-EU member states are regularly informed about the status and development), WHO and the EU research projects. Information on co-operation with the Baltic States and Russia as well as NATO is regularly updated during NEP meetings.

3.2 Exercises and drills

The Nordic authorities have agreed on the following:

- To communicate the national exercise schedules between each other.

- To invite other Nordic authorities to participate in exercises that may be of interest for other Nordic countries. The participation may happen either by sending observers or by activating their own response organisation.

- Other Nordic authorities may assist in the preparation of exercises and also assist during exercises by actively interacting with the “exercise country”. The Nordic authorities may assist in evaluation of national exercises.

- Exercise scenarios and other relevant material from both national and international exercises will be exchanged between the Nordic authorities when beneficial.

- Nordic authorities may also consider, when relevant, establishing specific joint Nordic objectives, in addition to international and national objectives.

Details regarding Nordic participation will be agreed prior to exercise. If Nordic participation is part of the exercise, Nordic objectives will be agreed upon and exercise guides will be written for players and evaluators prior to exercise. The NEP group publishes evaluation report of all exercises with specific Nordic objectives and organises follow-up of improvement of findings gained through exercises.

NEP will follow international guidance regarding conducting exercises, as well as following results and experiences gained during national, multinational and international exercises and taking into consideration lessons identified at national and Nordic levels.

NEP also organises regular, unannounced communication exercises to test duty systems of the Nordic authorities. Tests will be carried out during and outside office hours. The guidelines and

schedules are agreed by NEP. The guidelines of these exercises and the forms used are included in Appendices 4 and 5.

3.3 Exchange of background information regarding emergency arrangements

Ideally all states should make the same decisions regarding the protection of their citizens if they are exposed to same type of hazard. But since this is not always the case, one should at least be able to explain the differences. In any emergency it is of outmost importance that the responsible authorities have a clear understanding of the situation and its development, and also have an ability to communicate decisions being made in order to protect the public and to minimise the consequences of the emergency. This holds true not only for domestic emergencies but also for emergencies taking place in neighbouring states or even more remote states.
The Nordic authorities share information regarding emergency planning under the frame of the NEP co-operation. In Appendix 6, there are summaries of some of the most important parts of background information.
The Nordic guidelines and recommendations for protective actions durign early and intermediate phases of nuclear or radiological emergencies have been published in 2014 in a separate documents (“the Nordic Flag Book”)

Additional static information, e.g. maps and demographic data, are also available on national web pages established for nuclear emergency purposes. NEP will, when found beneficial, extend the background information to also cover other types of situations causing potential, perceived or actual radiation hazard.

In addition to Appendix 6, each state is also obliged under bilateral agreements to exchange information about nuclear installations (general information about construction, safety systems, operation, radiation protection, consequence mitigating actions and onsite and offsite emergency arrangements). This also includes consultations (cf. Article 3 in the bilateral agreements) in order to clarify the risk of incidents and emergencies.

3.4 Public communication

The Nordic authorities benefit from co-operation regarding public communication issues. This co-operation promotes harmonisation on how the media and the public are informed. The Nordic authorities should keep each other informed of the public communication activities during incidents and emergencies with the aim of harmonising information, including timing, when possible. Active exchange of public communication topics during incidents and emergencies helps the authorities to detect contradictory information issued in various states.

The information units of the Nordic nuclear and radiation safety authorities keep regular contact with each other. The Nordic authorities are also actively taking part in the international work and progress in public communication issues, thus promoting Nordic aspects of the matter. They also co-operate in implementing new arrangements into national systems.

In addition, it is beneficial to share background information produced especially for the public and for the media among the Nordic authorities e.g. information leaflets, FAQ lists.

A short overview of the Nordic public communication group (NPC) will be given in Appendix 7.

4 REVISION OF THIS DOCUMENT

NEP will assess the need for revision of this document every second year and update the necessary details. Essential changes in NORMAN will be presented to the Chiefs Meeting for approval. Updated versions of this document will be distributed to all organisations.

BILATERAL AND MULTILATERAL AGREEMENTS

Bilateral agreements

	Finland	Sweden	Norway	Denmark
Finland		x	x	x
Sweden	x		x	x
Norway	x	x		
Denmark	x	x		
Iceland				
UK			x	x
Germany	x	x	x	x
Netherlands			x	
Poland			x	x
Russia	x	x	x	x
Ukraine	x	x	x	
Lithuania			x	x

Multinational agreements

- Nordic Mutual Assistance Agreement in Connection with Radiation Accidents between Denmark, Finland, Sweden and Norway; signed in Vienna 17 October 1963 and in force since 19 June 1964
- Nordic Mutual Assistance Agreement in the event of a disaster or major accident (1989)
- Agreement (for the Nordic and Baltic region) on the Exchange of Radiation Monitoring Data (signed 7 June 2001)

International Conventions

- Convention on Early Notification of a Nuclear Accident (1986)
- Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency (1987)
- Council Decision (87/600/EURATOM) on Community arrangements for the early exchange of information in the event of a radiological emergency
- International Atomic Energy Agency, *Convention on Physical Protection of Nuclear Material and Nuclear Facilities* (Reproduced in document (INFCIRC/225/Revision 5), Vienna (2011)
- World Health Organisation, *International Health Regulations*, Switzerland (2005)

Guidelines for exchange of information between Nordic authorities during nuclear and radiological emergencies and incidents.

Cases in which information exchange should be considered include but are not limited to the following cases:

EMERGENCY, INCIDENT OR OTHER EVENT	SHALL INFORMATION BE SENT?	BY WHAT MEANS?
1 Nuclear Reactors		
1.1 Nuclear power plants and Research Reactors		
1.1.1 Unintentional events		
1. Site area or general emergency[1] at a Nordic NPP	By the accident country: Yes	Initial notification and significant changes in the event by fax, additional information by urgent mail and/ or on emergency Internet site
	By other Nordic countries: Yes. Inform about their own response	Issues affecting other countries by email, others on emergency Internet site
2. Alert[2] at a Nordic NPP	Yes	Initial notification by fax, additional information by email and/or on emergency Internet site
3. Reactor accident or safety situation at Sosnovy Bor NPP, Kola NPP or Murmansk Region	Yes Prime state[3] concerning accident development All Nordic countries: protective measures and detected or predicted contamination and other issues possibly affecting other Nordic countries.	Prime state: initial notification by fax, additional information by urgent mail All Nordic countries: by urgent mail and on emergency Internet site
4. Reactor accident or safety situation at a foreign NPP other than a Nordic NPP´s, Sosnovy Bor NPP, Kola NPP or	Yes. Information about response in the Nordic countries (eg. own safety assessments, disper-	Information by urgent mail and/or on emergency Internet site

[1] See appendix 6
[2] See appendix 6
[3] Chapter 2.3.2 in NORMAN

Murmansk Region	sion calculations, decisions made) and additional information received via bilateral contacts with the accident country	
5. Unusual event related to the safety of a domestic NPP plant or disturbance or anomaly. It can also be some other significant event which can have effect on people or property and which may cause a need for public information	Yes, if the event can have consequences in another country or give grounds for other countries to do domestic investigations and if media has shown interest in the event	By urgent mail
6. Unusual event in a NPP situated outside the Nordic countries. The event does not result in an emergency in a Nordic country but may lead to safety or security implications in a Nordic country (e.g. malfunction in equipment, software)	No, but if investigations show that the same generic fault exists in a Nordic country then yes	By urgent mail
1.1.2 Intentional acts		
7. Malevolent act against a Nordic NPP (sabotage, etc.).	Accident country: Yes	Initial notification and significant changes in the event by fax, additional information by urgent mail and/or on emergency Internet site
	Other Nordic countries: Yes, inform about their own response	Issues affecting other countries by urgent mail , others on emergency Internet site
8. Unconfirmed security threat concerning a Nordic NPP in general, or a demonstration seeking publicity concerning NPPs but which does not disturb or jeopardise the safety of the NPP	In principle no, but under special conditions and after agreed with police or other relevant authority information may be released	By urgent mail
9. Notification of a malevolent act against a NPP situated elsewhere than in the Nordic countries which does not result in an emergency in a Nordic country	No, unless some country has additional information received via bilateral contacts	By urgent mail

1.3 Nuclear Vessels		

10. Reactor accident in a nuclear vessel; close to or within territorial waters of a Nordic country	Country affected by the event: yes	Initial notification and significant changes by fax, additional information by urgent mail and/or on emergency Internet site
11. Unusual event in a nuclear vessel requiring information about the situation	Yes, if media has shown interest in the event or if some country has additional information received via bilateral contacts	By urgent mail
2 Nuclear material and waste		
2.1 Unintentional events		
12. Accident or incident during storage, treatment or transport of spent nuclear fuel or other nuclear material in a Nordic country	Event country: yes	Accident: Initial notification and significant changes by fax, additional information by urgent mail and/or on emergency Internet site Incident: by urgent mail
13. Accident or incident during storage, treatment or transport of spent nuclear fuel or other nuclear material in Leningrad, Kola and Murmansk region	Prime state[4] yes Other countries: if some country has additional information received via bilateral contacts	By urgent mail
14. Accident or incident during storage, treatment or transport of spent nuclear fuel or other nuclear material in another country with whom a Nordic country has a bilateral agreement	Yes, if a country has additional information received via bilateral contacts	By urgent mail
15. Incident concerning transport of unused nuclear fuel in a Nordic country	No, unless it is a of major media interest.	By urgent mail
16. Accident at a spent nuclear fuel reprocessing plant[12].	No, unless some country has additional information received via bilateral contacts	By urgent mail
2.2 Intentional acts		
17. Malevolent act involving nuclear substances in a Nordic	Yes	Initial notification and significant changes

[4] Chapter 2.3.2 in NORMAN

country e.g. in spent fuel storages.		by fax, additional information by urgent mail and/or on emergency Internet site
18. Confirmed or unconfirmed threat of malevolent act involving nuclear waste or nuclear material in a Nordic country.	Yes, if confidentiality allows it	By urgent mail
19. Stolen or missing nuclear materials in a Nordic country	Yes	Initial notification and significant changes by fax, additional information by urgent mail and/or on emergency Internet site
20. Malevolent act involving nuclear waste or nuclear material outside of Nordic countries.	No, unless some country has additional information received via bilateral contacts	By urgent mail
3 Radiation sources and use of radiation		
3.1 Unintentional events		
21. Accident in a Nordic country during transport of radioactive substances; shielding of radioactive substances has been lost or radioactive substances have been released into the environment	Yes	Initial notification and significant changes by fax, additional information by urgent mail and/or on emergency Internet site
22. Incident concerning transport of radioactive substances or waste in a Nordic country where shielding of the radioactive substances has not been lost.	No, unless it is a of major media interest.	By urgent mail
23. Accident in a Nordic country which results in a significant indoor contamination, in a release of radioactive substances into the environment or contamination of products. Incidents include: • accelerator laboratory manufacturing isotopes • company where significant amount of unsealed sources are handled • melted radioactive source	Yes	Initial notification and significant changes by fax, additional information by urgent mail and/or on emergency Internet site
24. Incident concerning use of radiation in a Nordic country, or a conventional accident (e.g. fire) at a plant / in a place where there are radioactive substances;	No, unless it is a of major media interest.	By urgent mail

Incidents include radioactive sources in industry and medicine.		
25. Lost high-activity sealed source [5] in a Nordic country; the source is most likely still in the country concerned,	Yes	By urgent mail
26. Found high-activity sealed source in a Nordic country	No, if the source is in country's registry; otherwise yes	Initial notification and significant changes by fax, additional information by urgent mail or on emergency Internet site
27. Lost high-activity sealed source of Nordic origin there could have been transported to another country	Yes	Initial notification and significant changes by fax, additional information by urgent mail or on emergency Internet site
28. Uncontrolled high-activity sealed source elsewhere than in the Nordic countries which could have been transported to another country	No	-
29. Incident in a Nordic country involving use of radiation / radioactive substances, - similar event could take place in Nordic country (e.g. malfunction in equipment, software) - there are foreign citizens involved in event	Yes	Initial notification and significant changes by fax, additional information by urgent mail or on emergency Internet site
30. Incident outside the Nordic countries involving use of radiation / radioactive substances, - similar event could take place in Nordic country (e.g. malfunction in equipment, software etc.) - there are Nordic citizens involved in incident	No, unless investigation shows that similar type of incident could take place in a Nordic country or Nordic citizens have received high doses.	By urgent mail

3.2 Intentional acts		
31. Explosion of a Radiological Dispersal Device (RDD) or other serious contamination made with radioactive substances in a Nordic country.	By the accident country: Yes	Initial notification and significant changes in the event by fax, additional information by urgent mail and/ or on emergency Internet site

[5] Activity values defining high-activity sealed sources are found in EU Council Directive 2013/59/EURATOM (Basic Safety Standards)

	By other Nordic countries: Yes. Inform about of their own response	Issues affecting other countries by email, others on emergency Internet site
32. Serious exposure of the public in a Nordic country	By the accident country: Yes	Initial notification and significant changes in the event by fax, additional information by urgent mail and/ or on emergency Internet site
	By other Nordic countries: Yes. Inform about of their own response	Issues affecting other countries by email, others on emergency Internet site
33. Contamination of products or environment due to spreading of radioactive substances in a Nordic country	By the accident country: Yes	Initial notification and significant changes in the event by fax, additional information by urgent mail and/ or on emergency Internet site
	By other Nordic countries: Yes. Inform about their own actions	Issues affecting other countries by email, others on emergency Internet site
34. Unconfirmed information or threat of a RDD or RED (Radiological Exposure Device) in a Nordic country or other threats of malevolent act involving radioactive substances.	Yes, if approved by the police or other relevant authority	By urgent mail
35. Explosion of RDD, other serious contamination of products or environment, serious exposure of public elsewhere than in the Nordic countries but where Nordic interests are involved (citizens, production etc).	Yes	Information affecting others by urgent mail and/or on emergency Internet site
36. Stolen category 2, 3 and 4 radioactive sources [6] in a Nordic country. The source is likely still in the country where it was stolen.	Yes	By urgent mail
37. Stolen category 2, 3 and 4 sources in a Nordic country. The	Yes	Initial notification and significant changes

[6] IAEA Safety Guide RS-G-1.9 (Categorization of Radioactive Sources)

source could have been transported to another country.		by fax, additional information by email and/or on emergency Internet site
38. Confirmed or unconfirmed information regarding illicit or unsafe use, possession, import, treatment or disposal of radioactive materials.	No	-

4 Nuclear weapons		
39. Nuclear explosion in a Nordic country	Country where the explosion took place: Yes	By fax and urgent mail
	Other countries: Yes, inform about their own actions	By fax and urgent mail
40. Nuclear non-test explosion outside Nordic countries	Yes, exchange safety assessments: dispersion, exposure, protective measures.	By urgent mail
41. Uncertain information concerning the use of nuclear weapon	Yes, information of confirmation of event but taking into account confidentiality and classification of received information	By urgent mail
42. Accident concerning nuclear weapons during storage, treatment or transport at a distance of less than 500 km from a Nordic country	Yes, but taking into account confidentiality and classification of received information.	By urgent mail
43. Nuclear weapon test, suspicion of nuclear weapon test or other test related to nuclear weapons	No.	-
44. Incident concerning nuclear weapons near Nordic countries. • For example a major forest fire close to the storage site of nuclear weapons.	Yes, if e.g. media has shown interest	By urgent mail
5 Space objects		
45. Nuclear or radioactive powered space object re-entry into the atmosphere and could possible crash in a Nordic country	• Yes, e.g. information about national planning and precautionary measures.	By urgent mail
46. Nuclear or radioactive powered space object re-entry; after reaching the surface in a Nordic country	• Notification: Yes, if a re-entry takes place in, or affects a Nordic country.	Once the re-entry has been confirmed in a Nordic country or at the neighbourhood

	• Exchange of information: Yes, whenever Nordic interests are affected	first notification and significant changes by fax, additional information by email and/or on emergency Internet site

6 Elevated radiation levels		
47. Confirmed elevated dose rate that does not decrease rapidly in one or more measuring stations in a Nordic country of unknown origin	Yes	• Country which makes the first detection: initial notification and significant changes by fax, additional information by urgent mail and/or on emergency Internet site • Detection in other countries: information by urgent mail
48. Detection of considerable fresh fallout or abnormal amount of radionuclides (in air, food or goods) where the origin of the substances is unknown	Yes	By urgent mail
49. Notification or unconfirmed information of contaminated goods / vehicle or illicit transport of radioactive substances, or notification made by customs authorities.	No	-
7 Other events		
50. Other notifications and information which need to be clarified rapidly or could have implications in a Nordic country (Eg Litvinenko)	Yes, after assessment case by case.	Fax in very urgent cases. Otherwise urgent mail.
51. Unconfirmed information or rumour of an incident giving grounds to seek for rapid clarification (may concern a nuclear reactor, nuclear materials, radioactive substances or some other radiation hazard)	Yes, after assessment case by case.	Fax in very urgent cases. Otherwise urgent mail.

LIAISON EXPERT ARRANGEMENTS

Roles and tasks

A liaison expert is a person from a Nordic competent authority with a general understanding of the emergency preparedness framework of the home nation, as well as expert knowledge of radiation safety. Liaisons can be stationed with the competent authority of the host nation, to help improve the understanding of the situation for both parts. They can also be stationed at Nordic embassies, to act as advisers.

The liaison expert only acts as the eyes and ears of the home nation, and does not have any executive power, nor should they be used as the main source of official information from the home nation.

When dealing with confidential information, please see NORMAN 2.1.

Practical arrangements

The liaison remains the responsibility of the home nation, and the employer maintains liability for his/her safety. The home nation is also financially responsible for the liaison.

The host nation appoints a contact person for the liaison.

Joint-liaison arrangements

Nordic countries can, when previously agreed, jointly send liaisons to another state.

NEPEX – Nordic Communication Exercises - Guidelines

NEP has agreed to continue the communication tests according to the following guidelines:

General

- No information of date or time of test is given to the other countries beforehand, only the month of the test is known.
- Tests are carried out according to a generic schedule below:

Month	Responsible and initiating Country
March	Sweden
April	Denmark
June	Finland
September	Iceland
December	Norway

- The test contains a fax message followed up by an e-mail message to "urgent mail". Both messages require follow up.
- The test can include a CONVEX 1 b to IAEA.
- Results for the entire test period will be summarized by the NEP Chairman.and presented at a NEP meeting

Instructions to the Responsible / initiating country

- Tests should be carried out both during and outside office hours.
- The NEPEX standard form should be used.
- The fax test message should be sent by fax to the national warning points (NWP's) in all countries
- The e-mail message shall contain the following information in English:
  - where to respond
  - if the test includes access to national web pages, instructions should be given.
- The e-mail message should be sent to the "urgent.mail" address at the Nordic authorities: BRS, SIS, GR, STUK, NRPA and SSM.
- After the test the following tasks shall be performed:
  - The response times shall be summarized,
  - Results should be reported to all participants within one week after the test and, if the results are remarkable in any way, discussed in the following NEP meeting.
- If some organisation does not response within a reasonable time (1-2 hours), it can be a question of some malfunctions in connections (fax or email lines). The test organiser should inform rapidly the country/organisation about the possible malfunctions.

Instruction to the responders

- Response to the fax message is required from all national competent authorities (NCA) as well as national warning points (NWP's)..
- Response to the e-mail is required from NCA's and SIS from Denmark.
- Response to the fax and e-mail messages should be given as soon as possible, preferably within 30 minutes after receiving the test message.
- When receiving fax and e-mail messages <u>within office hours</u>, written response by fax and by e-mail should be given to the fax number and e-mail address stated in the test messages.
- When receiving fax and e-mail messages <u>outside office hours</u>, response should be given by the mean preferred.

RESULTS OF THE COMMUNICATION EXERCISE OF NORDIC COUNTRIES (NEPEX)

Date of exercise:

Host (responsible and initiating) country:

Country/Authority		**Fax sent (UTC)**	**Response (UTC)**	**Results < 30 min**	**Urgent mail sent (UTC)**	**Response (UTC)**	**Results < 30 min**	**Remarks**
Denmark	Rikspolitichefen (NWP)	Time sent by host country	Time received by host country		N/A	N/A	N/A	
	DEMA (NCA)	Time sent from NWP to NCA	Time received by host country		Time sent by host country	Time received by host country		
	SIS	N/A	N/A	N/A	Time sent by host country	Time received by host country		
Finland	STUK (NWP, NCA)	Time sent by host country	Time received by host country		Time sent by host country	Time received by host country		
Iceland	Icelandic Coast Guard (NWP)	Time sent by host country	Time received by host country		N/A	N/A	N/A	
	GR (NCA)	Time sent from NWP to NCA	Time received by host country		Time sent by host country	Time received by host country		
Norway	NRPA (NWP, NCA)	Time sent by host country	Time received by host country		Time sent by host country	Time received by host country	Time sent by host country	
Sweden	SMHI (NWP)	Time sent by host country	Time received by host country		N/A	N/A	N/A	
	SSM (NCA)	Time sent from NWP to NCA	Time received by host country		Time sent by host country	Time received by host country	Time sent from NWP to NCA	

RESULTS OF THE COMMUNICATION EXERCISE OF NORDIC COUNTRIES (NEPEX)

Date of exercise:

Host:

Country/Authority		Fax sent (UTC)	Response (UTC)	Results < 30 min	Urgent mail sent (UTC)	Response (UTC)	Results < 30 min	Remarks
Denmark	Rikspolitichefen (NWP)				N/A	N/A	N/A	
	DEMA (NCA)							
	SIS	N/A	N/A	N/A				
Finland	STUK (NWP, NCA)							
Iceland	Icelandic Coast Guard (NWP)				N/A	N/A	N/A	
	GR (NCA)							
Norway	NRPA (NWP, NCA)							
Sweden	SMHI (NWP)				N/A	N/A	N/A	
	SSM (NCA)							

EXERCISE – EXERCISE - EXERCISE

NORDIC COMMUNICATION EXERCISE

A routine test of means for notification of nuclear or radiological incidents or events

This fax transmitted: Date: 16.12.2015 time: hh:mm UTC

RESPONSE TO THIS FAX

1

National Warning Point (NWP) :

Please forward this fax to the National Competent Authority(ies) (NCA (A+D) and acknowledge receipt of this fax to the sender.

2

National Competent Authorities (NCA)

(if other organisation than NWP):

Please acknowledge receipt of this fax to the sender.

Fill in and send to the fax number:

Country + Org.	Received / UTC	Respond / UTC

Name: _____

Position: _____

Please, notice that there also is an independent communication test message sent by electronic mail to NCA (A+D).

Fax and email are to be handled individually.

Fax is the primary and internationally accepted and used mechanism for notification and alarming of contact points and competent authorities. Fax is also the primary backup channel in the case of malfunction of other communications or the internet. National warning points and competent authorities have the capability to send and receive manual fax at all times.

FROM:

Organisation

Name

Tel: Fax:

NOTIFYING AND INFORMING THE PUBLIC
Nordic Public Communication group (NPC)

NPC

The Nordic authorities responsible for radiation and nuclear safety as well as radiation protection have established a forum for public communication for the exchange of information on common matters, ongoing work and projects. In some cases, this exchange can lead to a Nordic view on certain issues.
The cooperation on public communication (NPC) works under the Nordic Chiefs Meeting.

NPC maintains and develops the network between our authorities and exchanges information of common interest and media interest in NPC countries.
Working language is English and material prepared by the group is written in English.

NPC and NEP

Cooperation and best practices on radiation emergency preparedness issues are discussed in the NPC on a regular basis. The discussions cover exchange of information and experiences related to incidents/events, lessons learnt and sharing (crisis) communication strategies.
NPC also discusses other aspects related to risk- and crisis communication. One example is how the use of social media changes the practices of crisis communication.

NPC has an e-mail system (NPC news) for quick exchange of information. The system is used during events or crises, or rumors, but also to coordinate joint Nordic statements or other aspects of public communication.

NPC meets twice a year. If possible, coordination of yearly meetings should be carried out with NEP in order to discuss matters of common interest.

Some crisis communication principles

In a radiation hazard situation people should be informed quickly concerning the event and the radiation situation, and the impact of the situation on public health and safety. This will also prevent spreading of rumours and false information.

In general, information to the public should include

- what has happened
- make clear the areas where populations might be affected and those where people are not (or are unlikely to be) affected
- the possible health implications of doses received
- how the authorities are handling the event
- how the event will affect the population and the surrounding environment
- what is rational behaviour for the affected population

- when is the situation expected to return to normal
- a list of sources where the public can get reliable information about the situation

The information given shall be open, continuously updated and as comprehensive as the situation allows. The information given shall be relevant to the target groups. The authorities in charge should be available to the media and through them reach the general public.

In order to minimize the effects of a possible radioactive release, easily obtainable information about proper countermeasures and appropriate behaviour is required. Background information on the effects of radiation, possible consequences and counter measures, focusing on relevant areas and interests, should be available and easily accessible.