
Development of standardised information forms to improve the information fluxes between Licensees and Off-site authorities & bodies in emergency situations

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Abstract:

In order to improve and facilitate the transmission and use of information provided by the Licensee of a nuclear emergency affected site to off-site authorities and other bodies, namely the experts group in charge of the evaluation of the consequences of a nuclear emergency, a working group was initiated by the Federal Agency for Nuclear Control with the assignment of stating steering principles for the information exchange process and developing revised standardised information exchange forms according to these principles.

This paper provides a description of the steering principles, insights of revised forms and gives the first feedback from their use during emergency exercises.

1 INTRODUCTION

The Licensees of a nuclear site affected by an emergency situation is responsible for providing up-to-date information about the on-going situation to off-site authorities and other bodies in order to allow an as accurate as possible evaluation of the expected radiological consequences, the identification of relevant protective actions and their implementation. During nuclear emergency exercises, recurrent problems and difficulties have been identified linked with the information exchange (notification and further exchange of information). The following examples highlight these findings:

- when technical or radiological information or data are transmitted to non-experts in that fields, they are often misunderstood or misinterpreted, leading to inappropriate response, sometimes in contradiction with the advises of the evaluation expert group and/or decisions taken by the response authority;
- the compilation of a full set information and data (general, technical, radiological...) in a same form, waiting for any form field to be duly documented, leads to transmission delays;
- similar information or data are presented in different ways in the specific forms developed and used by each particular Licensee, complicating the task of the evaluation expert group in charge of advising the decision makers on protective actions based on technical and radiological assessment of the situation.

In order to fix these issues and, hence, to improve the information fluxes during nuclear emergencies, the Federal Agency for Nuclear Control took the initiative in October 2007 to launch a working group to review and harmonize the notification and information forms. The objectives and mandate of this Working Group were to develop a coherent set of standardized documents in first step for the nuclear power plants of Doel and Tihange and, in a second step, to transpose them to the other nuclear facilities of concern (fuel cycle facilities, research reactors, isotope production facility...).

During its first meeting, the working group decided to concentrate on the definition of "steering principles" before designing and developing the forms themselves.

This paper describes the steering principles elaborated by the working group and the resulting revised information exchange forms. First feedback from the use of the revised forms during recent nuclear emergency exercises is also provided together with some further perspectives.

2 STEERING PRINCIPLES DEVELOPED BY THE WORKING GROUP

The working group developed six “steering principles”. Each of those is discussed and described in the following sections.

2.1 Steering Principles Nr.1: Self-supported Forms

Each set of information or data must be self-supporting and addressed to one (or more) specific recipient(s) who need it and is able to use them appropriately. This offers the threefold advantage of (i) a better targeted information, (ii) a relevant distribution only to those who really need them to perform their duties and (iii) avoids unnecessary delays their transmission. On the other hand, a drawback might be a larger number of forms.

Proposed Steering Principle Nr.1: *“Make each form specific to a well-defined category of information, make it autonomous (self-supporting) and associate it with a specific distribution list (targeted information)”.*

2.2 Steering Principles Nr.2: Systematic Distribution Cover page

As result of the application of the first principle, a distribution cover page is systematically added to each of the developed form. This cover page specifies whether the recipient receives it for "Action" or for "information only". The expected advantage is to speed up and facilitate the effective dissemination of information and data. The duties meant by "for Action" or "for information only" stated on the cover page of the different forms should crystal clear to the recipient in order to avoid misunderstandings or displacement of responsibility during emergencies.

Proposed Steering Principle Nr.2: *“Integrate to each form a distribution cover page including the definition of the expected reaction of the recipients (to whom and for what to do)”.*

2.3 Steering Principles Nr.3: Provide sufficient flexibility

By definition, the notification and information forms are intended to cover many situations and aspects. However, it is impossible to include and cover all possible aspects in such forms. Therefore, sufficient flexibility should be provided in the forms to cope with unexpected situations and/or items. Accordingly, a free text area is systematically included allowing the input of any information or precision in connection with the actual situation. This area should be large enough to allow 2 or 3 sentences. Instructions & guidance’s concerning type and format of the information or data to be introduced in this area were strongly suggested. Finally, a special attention is to be paid concerning the readability of this area.

Similarly, it should be obvious to understand that all items or areas of the forms need not be necessarily fully completed or filled, as they could be not relevant, not appropriate or not available.

Proposed Steering Principle Nr.3: *“A free text area designed to introduce legibly information or data specific to the current situation and which are not covered in the template of the form is available in each forms. Also it is acknowledged that not all areas of the form are completed/filled in when irrelevant or not yet available and not expected in a very next future (avoid delays)”.*

2.4 Steering Principles Nr.4: Avoid any duplication of information or data

To optimize the resources and time needed to complete the forms, the forms should be designed to avoid any unnecessary duplication of information or data. This implies therefore to identify the information or data specific to each topical form.

Proposed Steering Principle Nr.4: *“Avoid having to enter identical information or data in several forms”.*

2.5 Steering Principles Nr.5: Possible guidance using the verso/back

For each form, the (not transmitted) verso/back could be valuably used to provide useful hits to the person in charge of filing it, such as background, instructions, guidance’s (how often should I complete and submit the form?, what information or data should be included?, how could I identify data not available?...), context (purpose of the form, identified recipient(s)...), tips or tricks (what should be done particular attention...).

Proposed Steering Principle Nr.5: *“Use of the verso/back (not transmitted) of the forms to provide maximum assistance to users: context, background, usage, instructions, guidance’s, tips and tricks”.*

2.6 Steering Principles Nr.6: Definition of forms categories

As result of the application of the first steering principle, six categories of forms are identified, as follows:

- **F-NOT** (NOTification): this set of forms includes the initial notification and developments/subsequent notifications. The end of the emergency situation is integrated in the latter one.
- **F-TEC** (TECHnical): This form contains the technical data.
- **F-RAD** (RADiological): This form contains the radiological data, including those associated with the consequences assessments (hypothesis, essential results from the models...) or with field measurements.
- **F-MED** (MEDical): This form contains the medical information concerning the health impact on the site (wounded, dead, involved...). Protective actions (gathering, accounting, stable iodine intake, site evacuation...) taken on-site by the Licensee are also included in this form.
- **F-CONV** (CONventional): This form contains information and data on conventional risk (non-radiological), such as fire, chemical pollution, ...
- **F-COM** (COMmunication): This form contains information relating to communication (press releases schedule and content, identification of spokesperson(s), communications strategy, key messages...)

3 EXAMPLES OF REVISED FORMS

The figures 1 to 5 illustrate some revised forms developed for the Doel NPP according to the above described steering principles.

Figure 1: Initial Notification Form – Cover page & Main form

Figure 2: Technical Form – Cover page & Main form

Formulier RADIOLOGISCHE gegevens
ELECTRABEL - KCD Kerncentrale Doel
Scheidmolenstraat - Haven 1800
9130 BEVEREN-WAAS (DOEL)

RADIOLOGISCHE GEGEVENS

IDENTIFICATIE AFZENDER: ELECTRABEL - KCD Kerncentrale Doel, Scheidmolenstraat - Haven 1800, 9130 BEVEREN-WAAS (DOEL)

VERSPREIDING: COCCO - PERMANENTE, COPECO, CELEVAL, CELMES, CELWFO, ECOSOC, COCCO - overige

CONTACTPERSOON: Wat/Wie/Waar, TELEFOON (*), FAX

AKKOORD VOOR VERZENDING (in te vullen door WR1)

Formulier RADIOLOGISCHE gegevens
ELECTRABEL - KCD Kerncentrale Doel
Scheidmolenstraat - Haven 1800
9130 BEVEREN-WAAS (DOEL)

REËEL: OEFENING: Goedkeuring van WR3:

Situatie op (datum/tijd): om (uur:min):

Getroffen eenheid: DOEL 1 DOEL 2 DOEL 3 DOEL 4 WAB/SITE

BEREKENINGSWIJZE: RADIOACTIEVE LOZINGEN - BRONTERM (gekoppeld aan de gekozen berekeningswijze)

WERKELIJKE UITSTOOT: Bezig? Nee Ja Alarm meetketers: HL1 HL2 Gestopt Tijdelijk Definitief

BRONTERM: Zesde fase addgasen, TSh, TQ, I-131 (mangese), TQh, TQ, Aerosolen, TSh, TQ

WEER (gekoppeld aan de gekozen berekeningswijze): Reëel Vooruitspelling Richting van waaruit de wind waait: (Noord = 0°, Oost = 90°, Zuid = 180°, West = 270°) m/s, Windsnelheid: m/s, Neerslag: Ja Nee Atmosferische stabiliteitsklasse: Pasquill-Gifford, Luchttemperatuur: °C

RESULTATEN (MAXIMUM - BEREKENINGEN - TERREINMETINGEN)

Type	Lokalisatie	Bijkomende informatie	Effectieve dosis mSv	Schieldosis mSv	mSv	Doeldebiet omg. mSv/h	Doeldebiet bodem mSv/h	I-131 Bq/m ³	Ce-137 Bq/m ³	Sq/m ²
B	M	L	P	G						

Figure 3: Radiological Form – Cover page & Main form

Formulier MEDISCH gegevens
ELECTRABEL - KCD Kerncentrale Doel
Scheidmolenstraat - Haven 1800
9130 BEVEREN-WAAS (DOEL)

MEDISCHE GEGEVENS EN BESCHERMINGSMATREGELEN OP DE SITE

IDENTIFICATIE AFZENDER: ELECTRABEL - KCD Kerncentrale Doel, Scheidmolenstraat - Haven 1800, 9130 BEVEREN-WAAS (DOEL)

VERZENDEN AAN: COCCO - PERMANENTE, COPECO, CELEVAL, CELMES, CELWFO, ECOSOC, COCCO - overige

CONTACTPERSOON: Wat/Wie/Waar, TELEFOON (*), FAX

AKKOORD VOOR VERZENDING (in te vullen door WR1)

Formulier MEDISCH gegevens
ELECTRABEL - KCD Kerncentrale Doel
Scheidmolenstraat - Haven 1800
9130 BEVEREN-WAAS (DOEL)

REËEL: OEFENING: Goedkeuring van WR1:

Situatie op (datum/tijd): om (uur:min):

Getroffen eenheid: DOEL 1 DOEL 2 DOEL 3 DOEL 4 WAB/SITE

MENSELIJKE GEVOLGEN OP DE SITE: JA NEE

Stooftoefenbalans op de site

Type	Bevestigd aantal	Niet-bevestigd aantal	Locatie (gecoördineerde zone of niet)	Onderneming(en)
Gewonden licht ernstig			<input type="checkbox"/> GZ <input type="checkbox"/> Buiten GZ	
Overleden			<input type="checkbox"/> GZ <input type="checkbox"/> Buiten GZ	
Bestraald			<input type="checkbox"/> GZ <input type="checkbox"/> Buiten GZ	
Besmettingen intern			<input type="checkbox"/> GZ <input type="checkbox"/> Buiten GZ	
Besmettingen extern			<input type="checkbox"/> GZ <input type="checkbox"/> Buiten GZ	
Decontaminatie op de site				
Decontaminatie buiten de site				
Vermissen			<input type="checkbox"/> GZ <input type="checkbox"/> Buiten GZ	

BE BESCHERMINGSMATREGELEN OP DE SITE

Aantal personen aanwezig op de site op het moment van activatie Noodplan (grootte orde): < 100 < < 300 < < 1.000 <

Hergroepering/Verzameling: Binnen Buiten

Evacuatie van de site: Preventief (naar huis) Voorzien tegen ... u ... min, Beëindigd sinds ... h ... min

Correlief (site besmet) In voorbereiding (opstellen opvangcentrum Puyenbroeck loopt...)

Figure 4: Medical & on-site protective actions Form – Cover page & Main form

Figure 5: Communication Form – Cover page & Main form

4 FIRST FEEDBACK FROM EXERCISES & PERSPECTIVES

After some early difficulties and nuanced reactions of Licensees (“there are too many forms to be filled”, “it takes too much time to fill in the forms”), largely due to a lack of ‘ownership’ of these new information exchange forms and associated steering principles, the experience feedback from nuclear emergency exercises are quite positive. In particular, at the recipients’ level, a clear improvement has been perceived both in terms of optimization of information fluxes as of their easy and efficient usage (the same types of information or data can be retrieved more easily and more efficiently).

To take into account the difficulties encountered by the Licensees and to allow a better ‘ownership’ of the revised forms, it was decided to develop a “modus operandi” summarizing the main objectives of the information exchange forms, the steering principles and the key instructions (general or specific to each particular form). This *modus operandi* can of course be supplemented later on the basis of feedback and observations made by users during emergency exercises, training or real emergency situations.

Finally, the transposition of these revised forms for the other nuclear facilities is underway. Some prototype versions were tested during emergency exercises organized for these facilities and the first lessons learned are pretty similar to those obtained for the Doel and Tihange NPPs.

5 SOME CONCLUSIONS

The results issued from the working group initiated several years ago to improve and facilitate the transmission and use of information provided by the Licensee of a nuclear emergency affected site to off-site authorities and other bodies are already globally positive and more benefit can be expected with time as users will become more familiar with the material and process. It should be stressed that these results would not have been possible without the active support and involvement of the concerned Licensees, in particular the Licensees of the Doel and Tihange NPPs, who have been associated with the elaboration of the steering principles and the associated development.