

Report from the Belgian stakeholder panel on scope, format and content of the Guidance for lifting of countermeasures

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Management Summary

Within the context of the European EURANOS integrated project of the European 6th Framework Programme (*Integrated Project FI6R-CT-2004-508843*), under CAT1RTD04, the SCK•CEN has organised a stakeholder panel in Belgium in order to discuss the draft version of the new guidance on lifting of emergency countermeasures. The latter was made available to SCK•CEN by the UK Health Protection Agency, Radiation Protection Division. It was decided to organise the panel as part of a CELEVAL workshop (CELEVAL is the radiological evaluation cell in the framework of the Belgian Emergency) such that it would benefit from a sufficiently broad audience.

Some relevant remarks are presented in this report.

- This guidance might have a better place as part of the inhabited area handbook than as a standalone document. The document is good to stimulate discussions, define a common terminology and launch discussions in order to derive at the level of each country practical arrangements and procedures. However it suffers in the current form from a certain amount of lack of clarity and good structuring, especially in its chapter 2 on influencing factors for the withdrawal of emergency countermeasures.
- The guidance would be more useful if specific scenario's are developed, trying to be generic over a too wide range of accident scopes makes the guidance too vague.
- It is suggested to discuss the radiological criteria prior to discussing the adequacy of monitoring data. Related to the latter, the analysis should follow the chain: conceptual criteria => operational criteria => measurements needed.
- Socio-economic aspects should be included as well in the list of influencing factors. In general, a broader discussion framework is necessary, while having the radiation-protection standpoint as a good start. The parts of the guidance concerning communication, socio-economic and psychological aspects might have to be developed with the help of specialists in these domains.

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Introduction

The SCK•CEN has organised on December 14th, 2007, a panel with Belgian stakeholders in order to discuss and give advice on the draft *generic guidance on the withdrawal of emergency countermeasures* following a radiological incident. Version Draft 1b of this document was used.

The panel was organised as part of a CELEVAL workshop (CELEVAL is the radiological evaluation cell in the framework of the Belgian Emergency Plan) such that it would benefit from a sufficiently broad audience: the Federal Agency for Nuclear Control, the Food Agency, nuclear installations (NPP Doel, NPP Tihange, SCK•CEN, Belgoprocess, IRE), the controlling authority (AVN) and the Ministry of Defense. The meeting took place in Brussels, in the headquarters of AVN.

In total 33 participants attended the panel meeting

- SCK•CEN (the Belgian Nuclear Research Centre): Benny Carlé, Frank Hardeman, Mark Loos, Geert Olyslaegers, Lieve Sweeck, Catrinel Turcanu, Alain Sohier, Johan Camps, Klaas van der Meer
- IRE (Institute for Radio-Elements): Michel Koziol, Bernard Verboomen
- FANC (Federal Agency for Nuclear Control): C. Vandecasteele, Guy Lefevbre, Lodewijk Vanbladel, J-P. Guisset
- AVN: Didier Degueudre, Marcel Maris, Olivier Smidts, Nicolas Noterman, Sébastien De Greve, Dirk Asselberghs, Pieter De Gelder, Henri Drymael
- NPP Doel: Jan Defloor, Kevin Schoovaerts, Martial Pardoën
- NPP Tihange: Aurélie Godfroid, Miguel Morais
- Electrabel corporate: Gislain Pascal
- FAVV (Food Agency): Ingeborg Mertens
- Belgoprocess: Olivier Goosens
- Ministry of Defence: Caroline Bellemans, Xavier Raedts

During the meeting, the following topics were addressed, based on Power Point presentations prepared by SCK•CEN:

- Relevant information about the EURANOS integrated project
- Context of the meeting
- Overview of the content of the guidance on withdrawal of emergency countermeasures
- Structured discussion following in detail each section of the guidance
- Other comments

All participants received a printed copy of the document. The presentation of each section/subsection of the handbook was accompanied by discussion on the relevance, the content and usage of the information included in the guidance. The comments collected are given in detail in the next chapter, while the conclusions are summarised in the last chapter of this report.

Details of the structured discussion at the Belgian stakeholder meeting

Introductory chapter of the guidance document

General remark

It is not clear to what extent this document will be a self-supporting document. The first paragraphs (1.1 – 1.5) are rather general and these are probably not needed for a guidance document. This guidance could be included in e.g. the inhabited areas handbook (in which case the first chapter is not needed).

Application of the guidance

Although few stakeholder processes can be organised in the intermediate phase during an emergency it was mentioned that it is important that stakeholder processes are initiated in advance, in the framework of emergency preparedness and planning. All stakeholders and organisations involved, especially local communities should be prepared. Collectivities should have an internal emergency plan as well; for instance if a school is supposed to implement countermeasures, this should be prepared. “Normal” channels should be used and stakeholders knowing the practice on the terrain. The internal emergency plan for schools elaborated in the area of Tihange in view of the emergency exercise in 2006 at the Tihange NPP could be used as template; this plan has to be validated by the province governor.

Remark: In the list of complementary applications for the guidance (section 1.4 in the guidance): an emergency exercise is not a training; both training sessions and emergency exercises should be mentioned at the “pre-emergency phase” (first item in the list)!

Scope of the guidance

Many stakeholders expressed that it is too difficult to make a generic handbook since there are many very different scenarios that should be considered.

The distinction between recovery/rehabilitation (Fig. 1.1.) is not clear. What do the upper arrows mean in Fig. 1.1, and is this figure consistent with the information in the inhabited areas handbook? (As far as we can see there is no reference to early / intermediate / late phase in this handbook).

In reality there is an overlap between the phases of emergency management. The use of a scheme as presented in figure 1.1 is regarded as valuable because of a common definition of terminology.

It was stressed that an intense measurement campaign will be necessary to close the early phase.

Withdrawal of sheltering (section 1.6.3 in the guidance)

Sheltering is seen only as useful if the release is short. In this respect the definition of the term short release is important. It is not clear in the documents what does a short period of release mean. The end of release is when the release has been confirmed to be stopped or when the plume is out of the area, see e.g. the Chernobyl case? For most situations the plume will rapidly leave the area of direct countermeasures after end of release.

Several stakeholders didn't see an added value in differentiating between short vs long period of release in a generic guidance.

After 24 h (foreseen maximal sheltering time in Belgium), it's possible that not all countermeasures intended have been completed. Self evacuation might happen immediately after plume passage so it is important to know to which degree countermeasures are followed. It remains unclear whether the population will really shelter when given advice for, or not.

A discussion was held concerning enforcing or rather recommending urgent measures. Sheltering is in principle an advice, but e.g. the mayor can enforce a measure. From the authorities' point of view it could be an obligation, but this doesn't ensure that it will really be obeyed. The reality is often different than thought of, and law suits might come later.

What can be learnt from non-nuclear experiences: it is probable that in case of advice/order to evacuate some people will want to stay and there are no strong methods to go against this. There are also some successful examples: the evacuation in NL of 250000 people due to the threat of flooding went well and smaller scale evacuations in Belgium went also ok. The lifting of countermeasures should also take into consideration their efficiency and the degree to which the people are observant of these countermeasures. In general, it was stated that the guideline for the withdrawal of sheltering can be worked out in more detail.

Withdrawal of evacuation

Measurements and communication are essential related to trust building: one must ensure that there are sufficient measurements and that reliable advice on returning to affected areas can be given.

What kind of evacuation: compulsory or advised? Legal aspects must be also considered. Useful input could be obtained from operational people with experience in evacuation of areas.

Partial withdrawal

“Partial” refers to both areas (the contamination can be inhomogeneous) and population groups (although it will be not feasible to split families), which is confusing. There are also other reasons for partial withdrawal: farmers need to feed the cows; critical infrastructures; people with special needs => not only to be considered for inhomogeneous contaminations. Discussions on what partial withdrawals are important and should be part of the local emergency preparedness processes.

Emergency personnel running errands is more a question of organising sheltering than of withdrawal.

Factors influencing withdrawal of emergency countermeasures

Why are the socio-economic aspects not mentioned?

Official confirmation that any release has stopped

One issue is whether officials such as site operators or safety regulators will be believed that the release has ended. There is a need for “independent” control (or the control must be perceived as independent), therefore “independent” experts might have to be involved and should be identified.

A lot of communication is required and an independent organism has to confirm that the release has finished.

Adequacy of monitoring data

The number of measurements may not be underestimated. In this context a discussion started on how to perform fast but reliable measurements (use of helicopter). Measurements should be communicated in a very clear way.

On the other hand, not only measurements are necessary, but also operational criteria and how they translate into measurements. In the handbook we should discuss first radiological criteria, and then monitoring data. There are conceptual criteria (e.g. TEDE) and operational criteria (e.g. ground shine), since not all useful quantities are measurable.

The analysis should follow the chain: conceptual criteria => operational criteria => measurements needed.

Related to monitoring, in addition to monitoring the contamination of an area etc, it is also necessary to monitor goods and people and to show that they are “not contaminated”. As an example, potentially contaminated ships should not be allowed to leave the harbour before appropriate measurements are carried out.

It is necessary to establish priorities for measurements (environment or people); people would probably ask priority for themselves.

One must make clear in communications what is measured and what this is relates to, e.g. ground contamination for food chain, dose rate for...

Measuring contamination in order to decide on the evacuation must consider two aspects: areas with high dose rates where no return is allowed and areas where the ground contamination allows return to affected areas as long as hygiene measures are taken such that contamination does not enter the food chain.

It is necessary to explain the intervention levels and the risks associated to intervention levels. There is a wrong and over-amplified perception of danger and associated risk associated in performing radioactivity measurements (because low signals can easily be measured) and having positive contamination indications, however small. The real response has however to take this “wrong” perception and the resulting psychological impact into account; e.g. it will be difficult to continue having agriculture in evacuated area (even if low or no contamination).

Some of the text is too complicated (example in § 2.2.1), shorter sentences would be better.

Radiological criteria

All generic ILs (intervention Levels) must be coherent (e.g. intervention personnel, public, ...) and must be explained to make them acceptable (however there is a distinction between

urgent phase and later phase). The person.Sv has a different meaning for e.g. public and workers.

It will take some time before the ICRP-2007 recommendations will be endorsed by the different countries.

More information necessary about the content and interpretation of the values of the effective dose as given in the two tables, the text is unclear. The framework should be mentioned clearly and correctly:

- The integration time not mentioned in tables 2.2 and 2.3. What do these values include? E.g. 1mSv/y is it from ground shine, or is the contribution of contaminated food from the affected area taken into consideration? Must make distinction between external and internal dose;
- Tables and pathways must be clear in the tables;
- Are these doses avertable doses? What is the starting point for the assessment of these doses?
- 20 mSv is a workers' dose level (In Belgium, this is also the max. exposure level during interventions for which you do not have to be voluntary). It is also mentioned as intervention level for evacuation (it is very low, is this feasible?)

The principles mentioned are appropriate, but not sufficiently clear to be really useful. This section needs to be re-written in more detail.

Radiation protection advice

The table 2.4 is too qualitative and not very informative. The whole chapter is rather vague which makes it only valuable for common understanding but much less for guidance. The guidance can be more pragmatic and should be worked out in more detail (specific for several accident scenarios) to define the measurement requirements in order to improve the organisation of measurement campaigns during emergencies (e.g. by quick education schemes)

It is generally stated that on the long term the (radiological) uncertainties will diminish, however in the global decision making context other, new uncertainties will come out. The stakeholder involvement is mentioned, but more guidance is needed, lists and categorisation of stakeholders, which processes to involve them, legal status of the consultations, etc.

Paragraph 2.4.1 should discuss more clearly what and how the radiological assessment at the end of sheltering can be organised, and how the outcome and uncertainties relate to the management options. (and the text can be written more clearly)

The compensation schemes will also influence the direction of handling the post accident crisis. Although the principles are known, it is unclear what the real situation will be. It is useful to think about this in advance and to arrive at a common understanding without having necessarily a solution "clé sur la porte" before the crisis.

It is important to know potential resources (monitoring et al.) in advance. E.g. in Belgium, the analysis of a few 100 samples a day is possible (SCK•CEN/IRE/WIV).

Whole body counting: In SCK•CEN: 4 whole body cells (& 1 hr per measurement), and a few cells at IRE and universities, therefore limited capacity.

Monitoring campaign at company level? It was mentioned that it would be good to extend the emergency plans of companies to include rehabilitation.

The spirit of the document is ok; it is good to launch discussions and to arrive at practical arrangements and procedures.

Socio-psychological aspects

See 2.2.8.

The socio – economic aspects are important too.

Availability of resources

This reflection exercise should take place in each country and the conclusion will probably be that there are not sufficient resources.

The monitoring capacities in Belgium are probably too limited, but how to extend them?

How to ensure assistance when needed? Suggestion; educate reservists/stand-by people who could help during and emergency.

Stakeholder dialogue

The withdrawal of evacuation or relocation can happen in a modular way, and should include constraints (living habits, food consumption, ...).

Conditions must be specified in more detail, also conditional redrawing of countermeasures should be included. A short training with the “do-s” and the “don’t-s” should be given to farmers.

See also previous comments, subchapter 2.1.

Communication strategy:

The guideline has been established by the radiation protection community. Although it does mention communication and psychological aspects, these are not sufficiently developed in the guidance and not by people from these domains. It possibly provides a too unilateral standpoint. People from different domains can provide technical support: psychologists, etc.

A broader discussion framework is necessary, but radiation protection is a necessary start point, e.g. IL’s (intervention levels). But why should RP experts address all the issues in the guidance?

Datasheets

The datasheets were not discussed in detail during the stakeholder meeting, a quick look inspired our panellists that the same information as in the previous chapter was repeated. The form of the datasheet is useful in itself, as it is used for other countermeasures too, but the information in the datasheet suffers from being too generic and therefore bringing little added value.

Some people suggested that 'lifting' is not a datasheet in itself, but that it should be included in the original datasheet of the countermeasure. At this point, both the datasheets in the two handbooks, and the decision-aiding framework, have little attention for the 'dynamics' of implementation of a countermeasure, it would be useful to develop this much more. This guidance document is a good starting point to do this.

Decision-aiding framework

The decision framework is very theoretical and doesn't consider the specificity of reality. It is a good decision tree for radiological advice, but the numerical figures presented at the decision nodes cannot be interpreted as strict values, so when using them in a decision tree, caution is needed. It was also mentioned that often response, like during the Chernobyl crisis, has been driven by the achievable.

Conclusions

This guidance might have a better place as part of the inhabited area handbook than as a standalone document.

The document is good to stimulate discussions, define a common terminology and launch discussions in order to derive at the level of each country practical arrangements and procedures. However it suffers in the current form from a certain amount of lack of clarity and good structuring, especially in its chapter 2 on influencing factors for the withdrawal of emergency countermeasures.

The guidance would be more useful if specific scenario's are developed, trying to be generic over a too wide range of accident scopes makes the guidance too vague.

It is suggested to discuss the radiological criteria prior to discussing the adequacy of monitoring data. Related to the latter, the analysis should follow the chain: conceptual criteria => operational criteria => measurements needed.

The section on radiological criteria should be rewritten and clarifying details should be added to explain the values in the tables, by a clear mentioning of the integration time and the pathways considered. The text of the section on radiation-protection advice might need to be rewritten to gain in concision and clarity.

Socio-economic aspects should be included as well in the list of influencing factors.

In general, a broader discussion framework is necessary, while having the radiation-protection standpoint as a good start. The parts of the guidance concerning communication, socio-economic and psychological aspects might have to be developed with the help of specialists in these domains.

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