

## **Note of SAFESPUR Meeting**

### **Communication of Safety Assessments/Cases, 3 July 2007, CIRIA, London**

The chair of the meeting, Bob Mathews of NUKEM Ltd, noted in his opening remarks that, to date, there has been very little communication to the public of nuclear industry safety cases.<sup>1</sup> Most safety cases are produced solely for use by the industry and its regulators and have some sort of security marking on them (eg “restricted”). There is now increasing emphasis on communication with stakeholders on nuclear safety matters. Government departments, regulators, the Nuclear Decommissioning Authority (NDA) and nuclear site licensees are all running stakeholder engagement programmes of one form or another. It is anticipated that those who prepare safety cases for major new nuclear facilities will be asked to produce documents that are suitable for a range of audiences. A primary purpose of the meeting was to explore the challenges in doing this. The meeting began with four presentations; these were followed by a facilitated discussion.

#### **NDA Approach to Stakeholder Engagement**

The first presentation was by Jon Phillips, the Communications Director at the NDA. He set the scene by describing the NDA’s stakeholder engagement activities and gave some views on which of these the NDA sees as most successful. The NDA defines a “stakeholder” as any individual or organisation that has declared an interest in the activities of the NDA. It defines “engagement” as including both communication and consultation. It finds it helpful to distinguish between three types of stakeholder:

- “assessing stakeholders”, who have a formal role in approving, supporting or assessing the NDA’s proposed actions or past performance (for example, central and local government, regulators);
- “participating stakeholders”, who make a major contribution to NDA work (for example, the site licence companies (SLCs), their contractors, the site stakeholder groups (SSGs) and the NDA national stakeholder group (NSG));
- “influencing stakeholders”, who have the potential to influence the strategy and direction of the NDA.

The NDA finds it most difficult to judge how much effort to devote to engagement of influencing stakeholders and is aware that there are some organisations with which it has little or no face-to-face communication.

SSGs are very different from their predecessors, the local liaison committees. They have independent chairs and meet outside normal working hours so that more people can attend. The NDA has been very pleased with the SSGs’ work on the site end-state consultations and feels that it has learnt a lot from these exercises. The NSG consists of about a hundred people and includes representatives from trades unions, the regulators, the SSGs, a few NGOs, and other organisations. It is currently reviewing its future in the light of experience over the past two years, with a view to making itself more cost-effective. For reasons that it understands but can do little about, the NDA has not been successful in engaging a wide range of NGOs at the national level. In addition to the NSG, there are separate NDA forums for senior regulators, trades unions and SLCs.

The NDA’s website has been very successful and is a primary means of engaging with large numbers of stakeholders. The site has a news alert service, e-newsletters for stakeholders, live web casts, web chats with an NDA panel and an on-line consultation facility. Despite the

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<sup>1</sup> On the whole, the meeting did not distinguish between safety assessments and safety cases. For simplicity this note uses the terminology safety case throughout, but much of what was said at the meeting also applies to safety assessments.

popularity of the website, the NDA has found that stakeholders' preferred method of communication is personal contact and this is the best way to build trust.

### **Key Issues in Communication of Repository Safety Cases**

Andy Baker of the Environment Agency gave a presentation on key issues in the communication of safety cases for near-surface and deep disposal facilities (repositories) for solid radioactive wastes. He prefaced his talk by saying that the views he would express were his own, not those of the Environment Agency as a whole.

He identified a number of problems with the repository safety cases that have been published in the past in the UK and other countries. Such cases were, for the most part, very technical and focused to a large extent on models and calculations. Some of the underlying assumptions were not identified and in some instances it was difficult to trace back from the results to the models, parameter values and arguments on which they depended. Communicating uncertainties and explaining how they are dealt with is a major challenge for those preparing post-closure safety cases.

Repository proponents would be well-advised to take a broad view of what a safety case is and to regard it as a collection of arguments for safety, not a set of calculations. It is important to use various methods to build confidence in a safety case, including showing that good science and engineering has been used, peer review, alternative (back-of-the-envelope) calculations and demonstration experiments. It is also helpful to make it clear that modelling post-closure conditions in and around a repository does not lead to predictions, in the usual sense of the word. Rather it produces a set of "what if" projections.

Andy made various suggestions for better communication of post-closure safety cases for repositories. One was that more use should be made of "storyboard" approaches, in which descriptions are given of how repository and environmental conditions could change with time and how particular radionuclides could behave. There is clearly a need for a hierarchy of safety case documents, including a summary for non-experts, an overview for those with more knowledge and detailed reports on all the various technical aspects. Thought might also be given to communicating safety cases via other media, such as DVDs and websites. Involving stakeholders in the technical safety assessment process at an early stage would be helpful. It could give them opportunities to raise issues of concern and to influence both the content and the means of communication of the safety case.

### **Communicating Uncertainty**

Bob Ward of Risk Management Solutions used the subject of climate change science to identify challenges and pitfalls in communicating uncertainty. It is essential at the outset to be clear about the objective of the communication. For example, is it to provide information, to justify a policy, to assist in a consultation or to influence people's behaviour? Some experts worry that information about uncertainty will confuse an audience or be perceived as indicating incompetence, and experience shows that this is true to some extent. However, communicating uncertainty can promote better-informed decisions and engender trust.

Bob illustrated the pitfalls in communicating uncertainty via two versions of a fictional radio interview between a reporter and a climate change researcher. In the first version of the interview the researcher made a number of errors in communicating the uncertainty associated with a piece of research, which those at the meeting were asked to identify. Comparison with the second version of the interview showed how these errors could have been avoided. The errors included:

- using numerical data to give a false impression of the precision with which uncertainties can be quantified;
- not explaining the differences between the results from two sets of researchers;

- claiming that all sources of uncertainty are known and can be quantified;
- presenting policy choices as following automatically from scientific evidence.

There is good evidence that when experts knowingly underplaying uncertainties, they undermine their credibility with lay audiences. A significant source of uncertainty for lay audiences is apparent disagreement between two or more experts, so conflicting viewpoints need to be explained, if not resolved.

### **Communicating Safety Cases to Communities**

David Collier of Faulkland Associates spoke about communicating safety cases to those who live near nuclear sites. He began by making various points about the context in which such communication occurs. While prescriptive regulation is relatively easy to understand, risk-based regulation is more difficult because there is no clear boundary between what is safe and what is not. Nevertheless, the public are well able to grasp the principles of probabilistic arguments. It is vital to recognise this and to avoid being patronising.

There is a distrust of modelling, which makes it inherently difficult to communicate safety cases that depend heavily on model calculations. Communities have a strong preference for monitoring, including monitoring of human health, accompanied by a commitment to take action if problems are discovered. There may also be a difficulty with the term “safety case”. It implies an adversarial approach and invites challenge, which can be detrimental to effective communication.

Two key issues in developing and communicating safety cases for nuclear facilities are transparency and trust. Communities need to know that the details of safety cases are available for independent review (for example, by NGOs) and that some such reviews have been carried out. This is more important to many stakeholders than being personally involved in developing or reviewing a safety case. There is a need to acknowledge uncertainties fully rather than paying them lip service through superficial analyses. Communities are heterogeneous and need information at different levels of technical detail.

On the whole, communities want to be able to trust the operators of nuclear facilities and the regulators. They do not want to be in a situation where lay people are taking decisions, especially if there is any possibility that such decisions will lead to increased risks. It is also important not to bypass local democratic institutions. Stakeholder engagement is an addition to, not a substitute for, existing democratic processes.

### **Facilitated Discussion**

The discussion covered three topics: the potential benefits of good communication of safety cases, the challenges, and ways to meet them. Some participants in the meeting had experience in operational safety cases for nuclear plant, others in environmental assessments for such plant, and others in long-term safety cases for radioactive waste repositories. In much of the discussion no distinction was made between these three rather different sorts of safety cases and assessments. Some of the comments made are applicable to all three but others are not.

#### *Benefits of good communication of safety cases*

The potential benefits identified at the meeting included:

- better-informed, more trusted safety management
- improved safety cases, because transparency and clarity are encouraged, external views can be incorporated and arguments are made more coherent
- stakeholders become more informed, which can facilitate engagement and dialogue on other topics (eg emergency planning), and help to build trust and provide reassurance

- reduction in the number of adversarial issues, so projects proceed more quickly and efficiently.

*Key challenges and solutions in safety case communication*

The following table summarises the key challenges identified at the meeting and the key solutions suggested.

<b>Key challenges</b>	<b>Key solutions</b>
<i>Scope of safety case communications</i>	
<ul style="list-style-type: none"> <li>• identifying all relevant stakeholders</li> <li>• dealing with multiple audiences</li> <li>• making incorrect assumptions about people's needs</li> <li>• managing expectations</li> <li>• understanding the questions to be answered</li> <li>• defining the scope of the safety case</li> <li>• avoiding too much advocacy</li> </ul>	<ul style="list-style-type: none"> <li>• careful planning of communications (who, how, where, when)</li> <li>• understanding the needs of audiences and tailoring communications accordingly</li> <li>• early consultation on the scope of the safety case and consultation on proposed changes to scope or methodology</li> </ul>
<i>Level of detail in safety case communications</i>	
<ul style="list-style-type: none"> <li>• communicating complex analyses</li> <li>• avoiding over-simplification</li> <li>• responding to concerns about uncertainties</li> </ul>	<ul style="list-style-type: none"> <li>• understanding areas of uncertainty and their importance</li> <li>• matching level of detail of analyses to level of understanding</li> <li>• showing clearly how uncertainties are managed</li> <li>• putting uncertainties and risks into appropriate context and perspective</li> </ul>
<i>General mistrust of the nuclear industry</i>	
<ul style="list-style-type: none"> <li>• high levels of mistrust</li> <li>• fixed and unyielding views</li> <li>• unresolved problems from the past</li> <li>• engendering confidence in the safety case process</li> </ul>	<ul style="list-style-type: none"> <li>• being open, developing relationships with stakeholders, using formal and informal communication processes</li> <li>• acknowledging conflicting views</li> <li>• having processes to take unresolved and out-of-scope issues forward</li> <li>• involving regulators and inviting peer reviews</li> </ul>
<i>Transparency in communication</i>	
<ul style="list-style-type: none"> <li>• security needs</li> <li>• regulatory transparency</li> <li>• maintaining engagement when the safety case changes</li> <li>• exposing incomplete solutions versus waiting until problems are fully resolved</li> </ul>	<ul style="list-style-type: none"> <li>• aiming for maximum transparency and being clear about what can and cannot be communicated</li> <li>• thinking in terms of a safety strategy (with a safety case, safety management and safety monitoring)</li> <li>• planning how to deal with potential problems, in this safety case or the next</li> </ul>

Key challenges	Key solutions
<i>Resources for communication</i>	
<ul style="list-style-type: none"> <li>• cost constraints</li> <li>• time constraints</li> <li>• consultations are expensive</li> <li>• stakeholders with limited resources</li> <li>• engaging without compromising one's position</li> </ul>	<ul style="list-style-type: none"> <li>• targeting resources according to hazards and uncertainties</li> <li>• planning and co-ordinating with other organisations</li> <li>• avoiding over-burdening stakeholders</li> <li>• learning from experience</li> </ul>
<i>Communication skills</i>	
<ul style="list-style-type: none"> <li>• shortage of communications skills in the nuclear industry</li> <li>• using appropriate formats and language</li> <li>• avoiding jargon</li> <li>• remembering that poor presentation leads to murky messages</li> </ul>	<ul style="list-style-type: none"> <li>• providing training and bringing together technical and communications specialists</li> <li>• structuring safety cases for various audiences, using appropriate visualisations and terminology, not patronising audiences</li> <li>• using the simplest appropriate language and not tolerating poor writing or other forms of presentation</li> </ul>

### Conclusions

In his concluding remarks Bob Mathews said that safety case communication for new nuclear facilities was likely to be more difficult than it seemed from the list of challenges and solutions. It would be made easier if there had been effective stakeholder engagement prior to the preparation and communication of a specific safety case. The nuclear industry and its contractors were willing to do this but contractors needed clarity as to what they should communicate and what would be covered by government or the NDA. Mark Bentley of CIRIA asked for suggestions as to how the topic of safety case communication could be taken forward by CIRIA, through the SAFESPUR forum, the SAFEGROUNDS and SD:SPUR learning networks or via other means.

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