



EDITORIAL

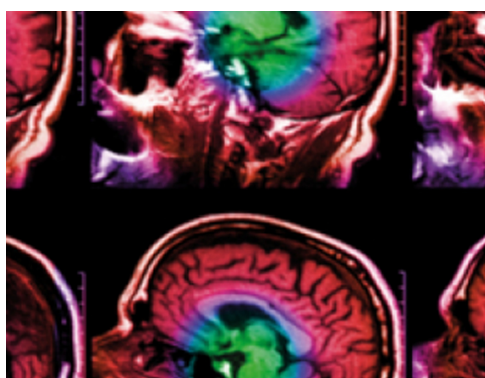
## INES classification of events with an off-site radiological impact

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### Related content

- [Classification of events with an off-site radiological impact at the Sellafield site between 1950 and 2000, using the International Nuclear Event Scale](#)  
G A M Webb, R W Anderson and M J S Gaffney



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## EDITORIAL

## INES classification of events with an off-site radiological impact

The paper published in this issue by Webb *et al* (page 33), which deals with the classification according to the International Nuclear Events Scale (INES) of events with off-site radiological impact occurring at the Sellafield site between 1950 and 2000, is noteworthy for two reasons.

Firstly, it is of great benefit to have a catalogue of these events, together with an internationally recognised assessment of their importance in terms of public safety, placed on the public record. Unplanned events of this kind are much more difficult to identify and assess in a retrospective study than is the historical profile of planned effluent discharges, and in consequence they can lead to uncertainty in any study attempting to reconstruct past radiation exposures to members of the public. The authors' efforts are therefore of value in adding to the understanding of the past environmental impact of operations at Sellafield.

Secondly, and of more general importance for radiation protection, they provide a detailed case study of the use of the INES system of classification for this type of event. Testing a system like INES through case studies is one of the best ways of verifying whether it is workable in practice, whether it achieves its objectives and whether there are aspects which could be improved.

The primary purpose of INES is '*to facilitate communication and understanding between the nuclear community, the media and the public on the safety significance of events occurring at nuclear installations*'. As Webb *et al* note, it is recognised that INES classifications are subject to revision as more detailed information becomes available. However, given the prime purpose of INES as an aid to communication and public understanding of events which are bound to raise considerable controversy and concern, there is a clear danger that revision of a classification (particularly if it leads to an upward revision of the severity of an event) will destroy the public confidence that INES is intended to engender. Ideally, INES classifications need to be 'right first time' or, if this is not possible, prudently conservative.

Webb *et al* note that information about some of the early incidents at Sellafield is limited, and so they have applied a combination of judgement and conservatism to arrive at a classification for many of the events that they have catalogued. As information will also be limited in the early stages of response to any future event, and it is in these early stages that the need for public information is most pressing, it is useful to examine the work of Webb *et al* for lessons which can be applied to the early assessment of future events.

Webb *et al* draw attention to the distinction between events at levels 5 to 7, where classification is on the basis of the quantity of activity released, and those at levels 3 to 4, where classification is based on assessed radiation doses to members of the public, taking into account factors such as local agricultural practices and dispersion characteristics at the time of the release.

In the case of level 5 to 7 events, difficulty in classification may arise from lack of early knowledge of the quantity and radionuclide composition of the release, as a consequence of the relatively limited number of radionuclides for which the INES manual provides 'radiological equivalence' factors, and as a consequence of the potential need to consider additivity of 'radiological equivalence' values for a mixed spectrum of released radionuclides. These are

areas for which additional data and guidance within the INES system could be extremely helpful to hard-pressed professionals responding to a major incident.

In the case of events at level 3 or 4 there must be some degree of site specificity in the assessment and there is also unavoidable uncertainty, particularly in the early stages. Webb *et al* introduce conservatism into their assessments in recognition of the uncertainty. This is an area which would benefit from generic guidance on methodology within INES, but also preparedness (in the sense of having an assessment methodology, compatible with INES guidance, in place) on the part of nuclear site operators.

In conclusion, this observer suggests that the data gathered together by Webb *et al*, together with comparable data from other nuclear facilities, could beneficially be used to test and improve both the current INES guidance on the classification of nuclear events with off-site radiological impact and the preparedness of site operators for using the INES system 'in anger' for this type of event.

**Steve Jones**

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