

The Role of the UK International Nuclear & Radiological Event Scale (INES) National Officer					
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1 INTRODUCTION

The International Nuclear and Radiological Event Scale (INES) is a notification system for communicating promptly and consistently information on the safety significance of events involving sources of radiation. Its purpose is to facilitate communication between the technical community, the media, and the public. It covers a wide spectrum of practices, including industrial and medical use of sources, activities at nuclear installations, and the transport of radioactive material.

The INES arrangements were originally developed in 1990, under the auspices of the International Atomic Energy Agency (IAEA) and OECD-Nuclear Energy Agency (NEA). In operation, it is coordinated and maintained by the IAEA, which: provides guidance to users through publication of a User's Manual (Ref. 1), provides training in the use of INES, and operates a computer-based repository for events reported to it.

At the international level, the INES administration is managed by the IAEA Secretariat through the Incident and Emergency Centre (IEC). The Secretariat also manages the Nuclear Events Web-based System (NEWS) – (Ref. 2) and the Unified System for Information Exchange (USIE) – (Ref. 3) where INES National Officers can post relevant events. Although information sharing on INES is not mandatory, Member States in general agree that events rated at Level 2 or above, and events attracting international media attention need to be communicated through the IAEA.

INES activities in the UK are coordinated by a government appointed UK INES National Officer (UKINO). The lead government department for interface with IAEA, and thus INES matters, is the Department of Business, Energy, and Industrial Strategy (BEIS). The UKINO is an ONR Inspector appointed with the agreement of BEIS.

1.1 Purpose

This guide is issued by ONR to support the UKINO in the discharge of their functions. It outlines the interface arrangements for the exchange of relevant information with other UK Government departments and agencies, nuclear facility operators, users of radiation sources and radioactive material, and the IAEA.

IAEA specifically advises that it is not appropriate to use INES to guide emergency response, select events for operational experience learning, or compare safety performance between facilities or organisations both nationally and internationally.

2 ROLES, RESPONSIBILITIES, AND INTERFACE ARRANGEMENTS

2.1 Purpose of the INES application in the UK

The INES scale is applied in the UK to ensure objective assessment of the risks related to incidents with release of radioactive materials, contamination or exposure of workers or members of the public to radioactivity, or loss/failure of protection against such incidents.

The second purpose of INES application is to provide timely and objective information to the IAEA in case of incidents of which are rated INES level 2 and above or attract international public interest.

2.2 Scope of the INES application in the UK

The INES application in the UK covers the following types of facilities and activities:

A) Facilities and activities regulated by ONR:

- Power reactors.
- Fuel cycle facilities.
- Research reactors.
- Transport of radioactive materials.
- B) Facilities and activities regulated by other organisations the Health and Safety Executive (HSE), the Health and Safety Executive Northern Ireland (HSENI), the Environmental Agency (EA), the Natural Resources body for Wales (NRW), the Scottish Environment Protection Agency (SEPA), the Department of Agricultural, Environment and Rural Affairs Northern Ireland (DAERANI):
- Accelerators.
- Facilities involving the manufacture and distribution of radionuclides.
- Use of radiation sources in hospitals, quality control, academia, etc.

2.3 INES application in the UK – Roles and responsibilities

BEIS governs the INES application in the UK and has assigned ONR to appoint the UKINO, who is responsible for the following functions:

- To review, as necessary, UK events to ensure that appropriate and consistent INES ratings are being applied by users. If requested, to provide advice on any rating awarded, and resolve any conflicting views as arbiter of the final rating (see Appendix 1 for further guidance to UKINO).
- Ensure that reports of events classified at Level 2 or above, and for lower level events where public interest outside the UK calls for a press release, are promptly communicated through the USIE interface to the IAEA (according to the process defined in Appendix 1, and the process map in Figure 1).

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- Establish and maintain arrangements to ensure that relevant overseas event reports are received and promulgated within the UK.
- Maintain a list of INES contacts at licensed sites in the UK.
- Organise a regular (preferably annual) workshop for INES users in the UK, which would normally include a training session.
- Represent the UK at the IAEA Technical Committee meetings of INES National Officers.
- Advise BEIS on the technical aspects of, and seek sanction for, any policy aspect of changes to INES.
- Facilitate, on request, training on INES matters within the UK.

The appointment of the UKINO by ONR and the duties undertaken are independent from ONR's normal regulatory responsibilities at licensed sites.

ONR Transport Competent Authority

It is recognised that a large proportion of the transport duty holders do not have the technical capability to provide INES ratings for incidents. In these cases, the ONR Transport Competent Authority (TCA) is responsible for rating transport related events. The transport duty holder is required to provide relevant information within the incident report, or additionally on request by the TCA, to enable the TCA inspector to decide the appropriate INES Rating.

For transport related events originating on a nuclear licensed site, the licensee will produce the initial INES rating, which will be verified by the TCA. The UKINO will take account of these INES ratings, but remains the ultimate decision-maker for the INES rating of events in the UK.

The Health and Safety Executive and other Regulators

HSE's Radiation Team should receive reports of occupational over-exposure events, under the provisions of Regulation 26 of the Ionising Radiation Regulations (2017); such a notification is required if the dose limits contained in Schedule 4 are exceeded. For incidents rated INES=2 or higher, HSE needs to prepare an INES rating justification according to the applicable Methodology (Ref. 4) and to submit this to the UKINO for review, approval, and subsequent publishing on the IAEA USIE website.

BEIS chairs the INES Reporting Group (IRG), which includes ONR, HSE, HSE NI, EA, NRW, SEPA and DAERA NI.

The IRG functions are defined in the 2018 Memorandum of Understanding (Ref. 5):

"In accordance with relevant legislation, and international obligations the goals of ONR, BEIS and the agencies are together to: identify and share information on reportable incidents; and

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have systems in place that enable the reporting of such events internationally in a consistent and timely manner".

Ref. 5 explains how ONR and the other agencies collaborate to deliver appropriate consistency of INES reporting within Great Britain and Northern Ireland.

Role of the Nuclear Site Licensees

For licensed nuclear sites the Licensee should nominate an individual as the primary contact for all discussions relating to INES matters. The licensee cannot submit information directly to USIE but should act as the intermediary with the UKINO to ensure that events rated at INES level 2 or above are submitted according to the process defined in Appendix 1, and the process map in Figure 1..

The Licensees are responsible for determining INES ratings for all relevant events and for ensuring that incident notifications or reports made to ONR contain the INES rating, whether provisional or final. However, the final INES rating shall be agreed by the UKINO, who is the ultimate decision-maker for the INES rating of events in the UK.

UK INES Workshop

Participation at the UK INES Workshop, which is normally held annually is open to representatives from UK licensees and duty-holders plus representatives from other users of INES. The workshop should include:

- INES training
- An exchange views on INES matters
- Feedback on the effectiveness of UK INES arrangements
- Review of any events posted to USIE since the previous meeting
- Identify any matters arising from, or to be communicated to, the meeting of INES National Officers and or the IAEA's INES Advisory Committee.

Role of and Interfaces with the IAEA

In fulfilling its role as the international custodian of INES, the IAEA's INES co-ordinator has established a standing Advisory Committee. The Advisory Committee may convene consultative meetings to address specific issues arising in relation to use of INES. Communication with the IAEA and subsequent international dissemination of INES reports is via the web-based system USIE/NEWS, available to registered users. Guidance on the use of USIE is provided in (Ref. 3). INES reports are disseminated via USIE and NEWS by an e-mail notification to all registered users.

Every two years IAEA organises a meeting for INES National Officers to share experience and exchange information on INES related matters.

3 **GUIDANCE**

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More detailed guidance for undertaking the role of UKINO is provided in the process maps in Figure 1 and in Appendix 1. In the absence of the UKINO, ONR has nominated a alternate staff members who are able to submit event reports to IAEA through USIE.

The process of communicating an INES report to IAEA though USIE is outlined in the USIE User's Manual (Ref. 2).

The UKINO should periodically convene a meeting to review the operation of INES within the UK. The terms of reference for the UK INES Review Group are outlined in paragraph 18 above. ONR provides the secretariat for the Review Group.

The UKINO should participate in the IAEA's biennial INES National Officers' meeting. At this meeting they should present relevant UK developments and events of interest to the international community.

A list of registered UK users is available on the NEWS website, this listing should be maintained by the UKINO with support from ONR business support staff

Provision of training in INES should be facilitated by the UKINO. In addition, IAEA may provide further training material and occasionally provides training on request.

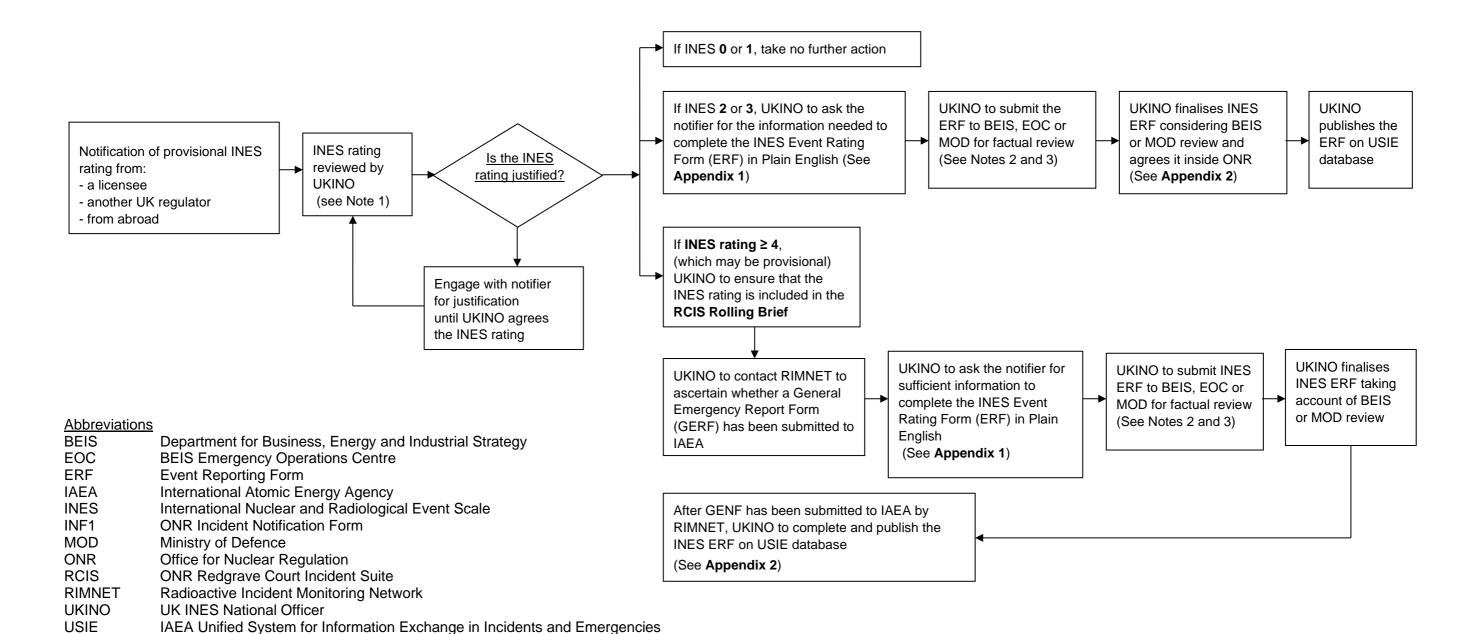
4 REFERENCES

Table 1 - References

Doc. Ref. No.:	Title
1	The International Nuclear and Radiological Event Scale (INES) User's Manual 2008 Edition, Amended Version, March 2013, IAEA.
2	Unified System for Information Exchange in Incidents and Emergencies (USIE), 14-23921, IAEA (saved as CM9 Ref. 2015/293075).Password controlled access to USIE at https://iec.iaea.org/usie .
3	Open access to NEWS at https://www-news.iaea.org/ .
4	International Reporting of UK Nuclear and Radiological Events Information Sharing and Partnership Methodology, Version 2, May 2020, CM9: 2020/312337
5	Memorandum of Understanding between the Office for Nuclear Regulation, the Health and Safety Executive (HSE), the Health and Safety Executive Northern Ireland, Environmental Agency (EA), the Natural Resources Body for Wales, the Scottish Environment Protection Agency, the Department of Agricultural, Environment and Rural Affairs Northern Ireland and the Department for Business Energy and Industrial Strategy (BEIS) on the implementation of arrangements for sharing information on and reporting incidents to the International Atomic Energy Agency, 27/07/2018, CM9: 2020/119135.

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FIGURE 1: OVERALL PROCESS MAP FOR REPORTING OF EVENTS WITH INES RATING >1 TO IAEA FOR GB LICENSED SITES AND EVENTS INVOLVING RADIOACTIVE MATERIAL TRANSPORT



<u>Notes</u>

- 1. Records of the outcome of reviews of the INES rating should be recorded on the INES Review Spreadsheet (CM9 Ref. 2015/334107 & 2020/61101).
- 2. Should the BEIS EOC not be established, contact should be made with BEIS Nuclear Incident Rota (BEIS Duty Officer) to obtain review feedback.
- 3. For events at Defence sites, the INES ERF should be sent to MOD for factual review and to BEIS for information.
- 4. Relevant IAEA, BEIS and other contact details under ENAC (the Early Notification and Assistance Conventions) are available at CM9: 2020/314593.
- 5. Contact details of the UKINO and alternates are available at CM9 Reference 2020/118751.

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APPENDIX 1 - ADDITIONAL GUIDANCE FOR THE UKINO

The UKINO should review events reported within the UK, as appropriate, to ensure that they are correctly and consistently rated for INES purposes. In practice this can be achieved by periodically sampling:

- ONR Incident/Event Notifications/INF1 Reports; and
- Licensee follow-up Reports.

ONR site inspection units are not responsible for establishing INES ratings and INES matters do not lie within the normal regulatory activities. However, if an ONR inspector has a concern regarding a particular INES rating, then such concerns should be discussed with the UKINO, who should then review the event and provide a response as necessary.

Where the UKINO determines that a detailed examination of a rating is necessary, the original justification for the event rating should be established and any other relevant information requested from the licensee/ operator or source user (Annex 1 provides a letter template for such requests). Once the needed information has been obtained, the UKINO should, using the IAEA's INES User's Manual, and with relevant advice from ONR technical specialists, assess and rate the event. An outline rating form can be found in Annex 3. If this assessment results in a rating different from that originally awarded, then this should be discussed with the original rating officer/organisation, in the first instance.

The UKINO should challenge the rating for an event that is not appropriately justified (Annex 2 provides a template of an example letter for such case). The UKINO may seek further guidance on the interpretation of the INES manual from the IAEA INES Coordinator or the INES Advisory Committee. However, this can be a protracted process, which is only of assistance on 'points of principle' rather than application to a specific event. While the National Officer is authorised to impose a rating, this should only be exercised as a last resort, after consultation with the organisation affected, the Chief Inspector of Nuclear Installations and with prior notification to BEIS. Annex 3 provides an example template to assist the UKINO in independently rating events; some licensees use this or a similar template.

For nuclear licensed sites the licensee's nominated representative is responsible for assigning an INES rating to any event notified to ONR. If an event is classified at INES level 2 or above, or for lower level events where public interest outside the country of origin calls for a press release, the UKINO should liaise with the licensee's representative to gather the information needed for publishing via USIE. The expectation is that preliminary event details should be posted onto USIE within 24 hours of notification from the operator/user. If the UKINO is not available, then one of the alternates should submit the event details via USIE.

The UKINO or alternate should obtain the text of the event description and the event rating justification from the licensee or operator. Both are needed to submit an event report; an "Event Description" can be viewed by the public but only registered users of USIE can view the Event Rating Form (ERF). The Licensee should provide the "Rating Justification" and other information required by the UKINO to complete the ERF. The UKINO should ensure that events rated at INES 2 or above are posted to NEWS within 24 hours, if possible. If an event rating is changed then the UKINO should update USIE accordingly.

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The UKINO should encourage the licensees to attach any appropriate media information releases for posting on the IAEA NEWS website and warn them to avoid publishing any information that could undermine further investigation and potential prosecution.

The UKINO should ensure that UK events submitted via USIE are also considered as candidates for other international reporting systems e g IRS, FINAS etc. This allows for a fuller exposition of the event and promulgation of any lessons learned to the wider international community.

It should be noted that the INES Advisory Committee will review all events communicated via NEWS and will advise National Officers if they consider an event has been rated incorrectly.

A1 Use of INES during a Nuclear Incident or Emergency

- 4.1.1 A1.1 During the course of a Nuclear Emergency, the UKINO or designated alternate may be called upon to advise the ONR emergency response group in the Redgrave Court Incident Suite (RCIS) on the INES rating, for an event in progress. Discussion may be necessary with representatives of the Licensee to rate the event. This rating should be clearly announced as "Provisional" as it may change as the emergency progresses.
- 4.1.2 A1.2 The IAEA encourages reporting of events within 24 hours, and there may be additional pressure to report to a shorter timescale. Under emergency conditions it might be desirable to communicate initial information regarding the event by means of the "Event Description", with a provisional rating being ascribed.
- 4.1.3 A1.3 The process map in Figure 1 should be followed when submitting an INES Event Report Form to IAEA.

A2 INES Rating of Occupational Over-exposures

- 4.1.4 A2.1 The INES 2 threshold is "Exposure of a worker in excess of statutory annual limits". This is currently 20 mSv for whole body dose, from a single event. This criterion should be confirmed by the dosimetry service before an event is communicated, so that the 'Final Rating' can be provided as the initial (and only) communication to USIE. Cumulative exposures that lead to a statutory limit being exceeded should be rated at INES 1 and therefore do not need to be communicated to IAEA.
- 4.1.5 A2.2 The event description should be compiled in such a manner as to prevent any individual or company being identified or revealing any information that might be considered sensitive in terms of national security.

A3 INES Rating of Radiation Source Events

4.1.6 A3.1 If EA, SEPA, Department of Environment Northern Ireland (DOENI) or Natural Resources Wales (NRW) consider it appropriate to communicate an event in relation to a lost or orphaned source via the USIE/NEWS system, the UKINO will, on receipt of event details, provide an INES rating to BEIS and the relevant environmental

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- agency. However, regardless of the rating allocated, the event will not be posted on USIE/NEWS without the agreement of all interested parties.
- 4.1.7 A3.2 The INES Event Rating Form should specify that the event has been rated by the UKINO on behalf of BEIS.
- 4.1.8 A3.3 The event description should be compiled in such a manner as to prevent any individual or company being identified or revealing any information that might be considered sensitive in terms of national security. It is considered that issues of national security may be relevant more frequently in relation to information on orphan sources and Civil Nuclear Security should be consulted if the UKINO has any concerns in this regard.
- 4.1.9 A3.4 The process maps in Figure 1 should be followed when submitting an INES Event Report Form to IAEA.

A4 INES Rating of Defence-Related Events

- 4.1.10 A4.1 It should be noted that INES is only intended for rating events associated with the civil nuclear industry. However, the Defence Nuclear Enterprise "mirrors" the civilian INES arrangements. The UKINO will provide advice, on request and in confidence, on the INES rating of a defence related event to the Ministry of Defence (MOD).
- 4.1.11 A4.2 The MOD will undertake any communication regarding defence related events, which should only be posted on USIE/NEWS after review and agreement of the INES ERF by MOD (see the process maps in Figure 1).
- 4.1.12 A4.3 Prior approval should also be sought from the IAEA INES Coordinator to confirm that an INES ERF for a defence-related event can be posted on USIE/NEWS in the light of INES being intended for use in civil (non-military) applications.

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APPENDIX 2 - PUBLICATION OF AN INES ≥ 2 EVENT ON THE IAEA USIE WEBSITE

According to the applicable Methodology (Ref. 5): "The supplying agency will take the lead in supplying the text for the IAEA website. This text is typically a short summary (recent submissions have been ~3 paragraphs in length) of the event that ensures the international community is aware of the event and if further details of the event are required these can be requested."

Preparation and Initial Review

- 1. For event notification issued by an ONR's licensee:
 - 1.1 Fill the INES Event Rating Form ERF (Ref. 5, Appendix 2), considering the level of detail in other publications on the IAEA USIE website for similar cases.
 - 1.2 Check the text with the Site Inspector.
 - 1.3 Check the text with the Lead Investigator, and if prosecution is considered with the Legal Team, and document the outcome in a clear statement that:
 - a) Investigation is ongoing, OR
 - b) The investigation is finished, but the circumstances will be further considered, OR
 - c) The investigation is finished and
 - the case is closed with a decision not to prosecute, OR
 - the case is closed with a decision quoted verbatim from the relevant report.
- 2. For ERF issued outside ONR by other regulators ask the issuing authority to carry out the following activities:
 - 2.1 Fill the ERF (Ref. 5, Appendix 2), considering the level of detail in other publications on the IAEA USIE website for similar cases.
 - 2.2 Check the ERF with their Lead Investigator, and if prosecution is possible with their Legal Team and to prepare a statement that:
 - a) Investigation of the event is ongoing, OR
 - b) The investigation is finished, but the circumstances will be further considered, OR
 - c) The investigation is finished and
 - the case is closed with a decision not to prosecute, OR
 - the case is closed with a decision *quoted verbatim from the relevant report*.
 - 2.3 Send the updated ERF and the check outcome statement to the UKINO

Final review and publishing

- 3. Update the ERF and send it for review to ONR Communications and ONR RIO.
- 4. Send the agreed ERF for I approval to BEIS,
 - Cc: ONR Chief Nuclear Inspector's office and ONR Technical Director
- 5. Publish the ENF
 - 5.1 Go to USIE/Publish (left top corner)
 - 5.2 Copy the text in the form and select "Save Draft" this action will outline any spelling errors/unacceptable characters, etc.

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5.3 Check word by word the text, names, web address etc., publish & save a *.pdf printout in ONR's INES archive CM9 folder.

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ANNEX 1 – LETTER TEMPLATE FROM UKINO SEEKING FURTHER INFORMATION

(UKINO Name) UK INES National Officer Office for Nuclear Regulation Address

INES representative Licensee Address Post Code

Direct Dial: Fax: email@onr.gsi.gov.uk

Date:

Unique No: Our Ref:

Dear (Company INES Representative)

UK INES NATIONAL OFFICER – REQUEST FOR FURTHER INFORMATION

I am writing to you in my capacity as the UK National INES Officer. It has come to my attention that an event at your (Name of installation/site) has been provisionally categorised by your company at INES (Number). The event in question took place on (Date of event) and related to (Event title). I understand your reference number is (Licensee Ref No). The event was reported to ONR and recorded with reference (Fast or UN Record Number).

I would like you to provide further information on the above event. In particular, the justification for the rating you have ascribed to it and any other pertinent information, such as a report of any subsequent investigations into the circumstances surrounding the event, by your staff.

Please provide a response within 2 weeks of receipt of this letter.

Yours sincerely

(Mr/Mrs/Ms/Dr. Name)

UK INES National Officer

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ANNEX 2 - LETTER TEMPLATE FROM UKINO ON OUTCOME OF AN INES RATING REVIEW

(UKINO Name) UK INES National Officer Office for Nuclear Regulation Address

INES representative Licensee/Operator Address Post Code

Direct Dial: Fax:

email@onr.gsi.gov.uk

Date:

Unique No: Our Ref:

Dear (Company INES Representative)

UK INES NATIONAL OFFICER - REVIEW OF A RATING

I am writing to you in my capacity as the UK National INES Officer. Further to my letter (UN ref No. and date) in relation to the event at your (Name of site or installation), I have reviewed the additional information that you kindly provided.

[Then insert one of the 2 options indicated below]

Option 1 text. In my opinion the INES rating provisionally ascribed by you is incorrect, for the following reason: (Reason for INES officer's opinion based on the User's Manual 2008 Edition)

It is therefore my intention to (insert one of following options) alter the rating on the NEWS database to ascribe a final rating for this event at INES (Number): change the current provisional rating for the event to Level X and amend the INES NEWS database accordingly.

If you disagree with my proposed course of action, please contact me within 7 days of receipt of this letter to discuss the matter further.

OR

Option 2 text. In my opinion the INES rating provisionally ascribed by you is correct. It is my intention to confirm this rating as final on the INES NEWS database. Thank you for your assistance in this matter.

Yours sincerely

(Mr/Mrs/Ms/Dr. Name) UK INES National Officer

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(INES) National Officer

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ANNEX 3 – UKINO EVENT RATING FORMAT

Event Title and Reference to ONR records.

EVENT INFORMATION

Include a brief description of the event, including actual consequences and any other relevant information pertinent to the INES rating procedure.

FACTORS CONSIDERED IN RATING THE EVENT FOR INES PURPOSES.

Use the tabular format below to record the rating of the referenced event. The criteria used are those from the numbered sections of the INES User's Manual 2008 Edition, Amended Version, March 2013 (Ref. 1). Those quoted are considered to be the most relevant, however the rating exercise inevitably requires a degree of judgement.

Criteria (Ref. 1)	Explanation
-------------------	-------------

- 2. IMPACT ON PEOPLE AND THE ENVIRONMENT (INES Range: Levels 2-7)
- 2.2 activity released For atmospheric release, radionuclide(s) and total

amount to be considered. For liquid or solid release

use section 3.2.

2.3 doses to individuals Find maximum dose in relation to annual statutory

limits.

- 3. IMPACT ON RADIOLOGICAL BARRIERS & CONTROLS (INES Range: Levels 2-5)
- 3.2 radiological barriers and controls

at facility

Only applicable to licensed sites, where there is a potential for release that could be rated at level 5 or above. This section covers spreads of contamination, the significance being judged by the amount spread and the resultant dose rate.

ASSESSMENT OF IMPACT ON DEFENCE IN DEPTH (INES Maximum: Level 3)

- 4. TRANSPORT AND RADIATION SOURCE EVENTS
- 5. AT-POWER REACTOR EVENTS
- 6. EVENTS AT SPECIFIED FACILITIES

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Criteria (Ref. 1)	Explanation	
4.2.1 & 6.2.1 maximum potential consequences	Maximum potential consequences need to be assessed should all safety provisions fail, for:	
	4. Transport and radiation source events – levels 1 - 5	
(applies only to categories 4 & 6	6. Other specified facilities – levels 2-7	
above)	Are considered to represent the range of credible consequences from these events.	
4.2.2. Effectiveness of safety	Using tables 6-8 should help determine the final rating.	
provisions	These sections help to determine the amount of	
5.1.1. Initiator frequency	degradation of defence-in-depth and also take account of the safety provisions remaining.	
5.1.2. Safety function operability		
6.2.2. Identification of number of safety layers.		
5.1.3. & 5.1.4. Assessment of the basic rating:	These sections should provide a basic rating.	
6.2.3. Assessment of the basic rating.		
5.2 & 6.2.4 additional factors.	Particular aspects challenging safety provisions may	
These only apply in rating events under category 5 and 6.	rating. These include common cause failures, procedural inadequacies and safety culture issues. Any increase of the rating, justified by additional factors, cannot take the overall rating above level 3.	
UKINO OVERALL INES RATING – Level (x)		
Name of UKINO	Date:	