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| ONR GUIDE | | | |
| ONR Guidance: Notifying and Reporting Incidents and Events to ONR | | | |
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1. INTRODUCTION

- 1.1 Operating experience (OpEx) is a valuable source for learning about and improving the safety and security of nuclear facilities and activities. As part of any OpEx process it is essential to collect information from incidents and events occurring in nuclear facilities. As part of the reporting process thresholds for events are set by operators, including deviations by systems and by personnel, which could be precursors to more significant events. As part of an effective national system for the feedback of OpEx, the regulatory body should also make it clear its criteria for the incidents/events to be reported to it by licensees, operators or other duty-holders.
- 1.2 Incident and event reporting in the UK nuclear industry has developed from experience of designing, constructing, commissioning, operating and decommissioning numerous nuclear facilities. Incidents and events are notified or reported to the regulators and other governmental organisations as a result of prescription in law; other requirements such as the Ministerial Reporting Criteria (MRC) and by agreement with licensees and duty-holders on what ONR should be informed about to comply with the conditions attached to the nuclear site licence. This document draws on legal requirements, regulatory expectations and the historic practices of duty-holders and operators to form a compendium of incident reporting criteria.

2. PURPOSE AND SCOPE

- 2.1 The purpose of this document is twofold:-
- To provide guidance to organisations whose facilities and activities are regulated by ONR or where it has a regulatory interest, on what, when and how to notify and report to ONR incidents or other events with the potential to affect nuclear safety, radiological safety, security, safeguards, and transport safety.
 - To help ONR to collect and process information that it needs to assist in its judgement that nuclear facilities or related activities are safe and secure and to inform its intervention programmes.
- 2.2 In the majority of cases, it will be the Licensee, operator or duty holder that makes the initial notification that an abnormal event or incident has occurred.
- 2.3 This guidance is to assist all sites and organisations that are regulated by ONR in relation to notifying nuclear, radiological, safeguards, security and transport related incidents. Arrangements for reporting industrial safety events under RIDDOR remain unchanged, noting that ONR would wish to be informed of any significant injuries which occur on a licensed site.
- 2.4 The document sets out the notification/reporting criteria and describes the timing and information that ONR requires or requests in respect of incidents, and how, when and to whom the information is to be provided.
- 2.5 This guidance excludes the existing arrangements for notification when a site's nuclear emergency arrangements have been invoked.

3. REPORTING OF INCIDENTS, OCCURRENCES AND OTHER EVENTS

3.1 NOTIFICATION VERSUS REPORTING

- 3.1.1 In most circumstances the terms incident, event and occurrence may be assumed to be interchangeable unless stated otherwise. For the purposes of this document the term “incident” will be used predominantly.
- 3.1.2 The terms notification and reporting are often assumed to be synonymous when discussing incidents being communicated by licensees and duty-holders to external organisations such as ONR or BEIS. The requirements of legal instruments, regulations and ministerial directions can also be similarly confusing when some Regulations use the term Reporting, others Notification/Reporting and the Licence Conditions use the terms Reporting, Notification or Notify.
- 3.1.3 For the purposes of this document the term “initial notification” will be used to mean the first communication between the operator and ONR whereby a brief outline of the salient details of an incident are conveyed by the most appropriate means eg email or telephone. For most formal reporting requirements, the information contained in the initial notification should be sufficient to enable a prompt alert to be made to the appropriate authorities. This should include the reporting requirements set out in particular regulations or for those meeting the Ministerial Reporting Criteria. However where reporting is used to comply with a requirement specifically demanded by legal statute, then this should be made clear.
- 3.1.4 Subsequent to the incident it is expected that the licensee or operator will perform an investigation into the circumstances surrounding the incident. This process should permit a more complete report of the details related to the incident to be produced by the operator and sent to ONR within 60 days of the incident. For the purposes of this document, this is termed a “Follow-up Report”. However, Follow-up Reports may still need to be made separately to other timescales to meet legal obligations; some will also require specific information as set out in relevant legislation.
- 3.1.5 In some cases the 60 day Follow Up Report will not include all relevant details contained within further investigations undertaken by the licensee. Where significant new information is available as a result, it is appropriate for a further Follow Up Report to be forwarded to the ONR.

3.2 CRITERIA FOR NOTIFICATION AND REPORTING TO ONR

- 3.2.1 Each incident should be raised on a separate INF1 and sent to ONR as a discreet incident. Where several incidents have occurred and are seen to be inextricably linked, a single INF1 may be raised, which should include clarification on the connection of the incidents notified.
- 3.2.2 Appendix 1 comprises a number of Tables and some accompanying guidance on interpreting criteria for incidents or events occurring on licensed and other sites/locations, that ONR should be informed of under Licence Condition (LC) 7 and other legislation.
- 3.2.3 The criteria are arranged in the topic areas of: nuclear safety; radiological safety, nuclear security, nuclear safeguards and radioactive transport. Each notifiable incident should carry only one ONR category (with the exception of AN01 which may be added to any category). Where the incident in question could fall under one of several ONR categories, the category with the greatest significance, and thus the

shortest reporting time-scale should be selected. Other categories may be included within the 'Other comments' field should it been seen as appropriate to do so.

- 3.2.4 The AN01 criteria should not be used where an incident does not meet precisely the criteria within this guidance. In these cases the most appropriate criteria should be used and advice may be obtained from the relevant ONR Site Inspector on which is the most appropriate criteria to use.
- 3.2.5 It should be noted that the current legal reporting requirements for industrial safety events under Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR) remain unchanged and are not included in this document.
- 3.2.6 Where this guidance refers to examples of incidents that ONR considers should be notified or otherwise reported; the examples are illustrative and should not be regarded as definitive. In evaluating what should be notified or reported to ONR, licensees, operators or duty-holders (OLD) should consider the requirements of the licence conditions or other applicable law, to inform prudent and conservative decisions about what should be notified to the nuclear regulator in the interests of safety and security.

3.3 CONTENTS OF INITIAL NOTIFICATION

- 3.3.1 The initial notification of any incident may be by electronic communication or by telephone, and should contain the following information(where relevant):-
- The site, location or premises at which the incident occurred.
 - Date and time of the incident, or the discovery of condition.
 - The part of the plant or area involved, or the mode of transport.
 - The ONR category under which the incident is being reported.
 - A brief description of the nature of the incident, written as far as possible in plain English including current plant or package status.
 - Identification of the likely or possible impact of incidents;
 - Whether there has been a release of radioactivity, an estimate of the amount and nature of the release.
 - Details of any casualties or otherwise affected persons.
 - Potential consequences for the safety or security of affected operations
 - If known, the potential impact on other operations or for other installations.
 - A provisional (or finalised where possible) International Nuclear and Radiological Event Scale (INES) rating, if applicable.
 - For events occurring during transportation; identify the consignor, consignee and carrier where relevant.
 - What mitigating action has been taken to restore safe/secure conditions and, if known, what remedial actions may be required in the future.
 - Which, if any, emergency services were or still are in attendance
 - Confirm whether the incident meets Ministerial Reporting Criteria (Appendix 2), if so which and if BEIS/MoD/Devolved Administration(s) have been informed.
 - Confirm whether other relevant regulators have been informed.
 - Whether media or other groups are being informed, and if there has been any media interest prior to the notification.
 - The name and contact details of a person nominated for ONR follow-up.
- 3.3.2 Duty-Holders are advised to perform a basic check of completeness and adequacy, prior to transmitting INF1 forms to ONR.

3.4 TIMING OF NOTIFICATIONS

3.4.1 The expected timing of notifications is broadly proportionate to the significance of the incident or event being reported. Different terms are used in regulations and other reporting requirements in relation to the timing of notifications, with information to be provided to meet times specified such as: by the quickest means available, forthwith, without undue delay, as soon as practicable etc. To make this clearer and for consistency this document outlines initial notification timing categories, as follows:

- Immediate: As soon as practicable, but in any event within 8 hours. Phone Notification to the relevant inspector is acceptable but the INF1 should be completed as soon as is practicable.
- Day: By the end of the next working day.
- Week: Within 7 days.
- 24 Hours: For security events reported under Nuclear Industries Security Regulations (NISR) 2003

3.4.2 If it is not immediately obvious; or further assessment is needed; or there is some doubt about whether an incident or event meets the incident notification criteria then it would be prudent to notify ONR and then if subsequent review confirms that the event is not deemed significant enough to meet the threshold then a request should be made to ONR not to include the incident in the official statistics. In this case no follow-up report will be necessary.

3.4.3 There may be cases where the criteria in this guidance do not require immediate notification, but an event is nevertheless notified to other agencies or departments in government or devolved administrations with immediate effect. Licensees and duty holders should consider making a report to ONR at the same time, or ONR may request notification at the same time, to facilitate preparation of press-briefings and any statements necessary for public confidence in the regulatory regime. The criteria for making immediate reports to other bodies may vary over time.

3.5 HOW TO NOTIFY OR REPORT INCIDENTS TO ONR

3.5.1 Appendix 3 provides details of how to notify ONR of an incident. This should normally be done by the reporting site/operator completing Part A of an ONR Incident Notification Form (INF 1), which can be downloaded from the ONR website.

3.5.2 Once completed the form should be emailed to the relevant ONR account, or faxed; or posted to the relevant ONR inspector (if known). Contact details are provided in Appendix 3 and on the form.

3.5.3 Where immediate or out-of-hours notifications are necessary then a telephone call and verbal report should be made. Completion of the INF1 shall be completed as soon as practicable and sent to the relevant e-mail account (following such a notification, and by agreement, Part A of the INF1 may be completed by an ONR Inspector).

3.5.4 For Security related notifications, a telephone call should be made to the relevant site security inspector during the working day or the CNS duty officer out of hours. This initial notification is to be followed up with submission of an INF 1 form by the dutyholder.

3.5.5 For Transport related notifications, a telephone call should be made in the first instance. ONR would expect this to be followed up with submission of an INF1 form (following such a notification, and by agreement, Part A of the INF1 may be

completed by an ONR Inspector). Subject to agreement and exceptionally, the ONR Inspector may not require a Follow Up Report.

- 3.5.6 If the duty holder is unable to submit an INF1, then ONR may create one, see Appendix 3.

3.6 CONTENTS AND TIMING OF FOLLOW-UP REPORTS

- 3.6.1 All INF1s shall be followed up within 60 days by an appropriate Follow Up Report. The nature and extent of this report will be dependent on the severity of an incident or its potential. The follow-up report shall contain, as appropriate:-

- An event title, no greater than 20 words of plain English.
- The information that was contained in the preliminary notification report and any necessary updates clearly indicated eg change to ONR or Duty holder categories.
- The finalised INES rating.
- A detailed description of the progression of the incident including any relevant circumstances associated with the occurrence.
- An assessment of the safety significance of the situation or incident, including the consequences or potential consequences.
- The findings from the investigation, particularly the contributor factors which caused the event; identifying both the direct and root cause as appropriate. In addition a summary of the lessons learned would be valuable.
- A description of the actions taken, or proposed, with timescales and responsibilities, to correct the situation and to help prevent a recurrence. What mitigating action has been taken to restore safe conditions and, if known, what remedial actions may be required in the future.
- If consequences for other plants' operations have been identified, then an indication of the lessons learned and how they have been more widely disseminated.
- Confirm whether BEIS/MoD has been informed under the relevant Ministerial reporting arrangements.
- Confirm which, if any, other relevant regulators or Government Departments (eg EA, SEPA, DEFRA, MoD etc) have been similarly notified.
- A press statement, if available.
- Follow Up Reports should be dated and contain a unique reference to the original notification.
- A nominated contact for regulatory follow-up.

- 3.6.2 The INF1 format should not be used for Follow-Up reports. If for any reason a follow up report cannot be sent to ONR within 60 days of the incident, the OLD shall inform ONR as soon as practicable to discuss alternate arrangements. This may include the submission of one or several interim reports.

- 3.6.3 Where incident investigations do not attract a full root cause analysis then as a minimum, the direct cause, any contributory factors and corrective actions identified, with timescales for action completion should be included in the follow-up report.

- 3.6.4 If ONR decides to launch its own separate investigation, this should not preclude the follow-up report being provided by the licensee or duty holder.

- 3.6.5 In the case of INF1s submitted under an AN01 code, it may be acceptable for the Follow Up Report to be replaced (subject to approval by the relevant Site inspector) by a simple e-mail to close out the incident.

4. REGULATORY RESPONSE TO INCIDENTS

- 4.1.1 ONR responds to incidents in accordance with principles established by the ONR, where appropriate we may take enforcement action in compliance with the ONR Enforcement Policy Statement, evaluation processes and guidance. The guidance contains five basic principles and requires that enforcement is proportionate, targeted, consistent, transparent and accountable. There are a range of measures available to secure compliance with regulatory requirements, and to ensure an appropriate response to a shortfall in duty-holder performance. Fundamental is the principle that the regulatory response should be proportionate to the risks to health and safety or security, the hazard presented, the seriousness of the transgression, and the history of compliance.
- 4.1.2 Duty-Holders' and Licensees' arrangements usually include event categorisation codes to indicate the activity involved and the safety significance of the event. Events notified to ONR may have several operator/licensee event codes included, to capture the range of activities contributing to the event; the codes are also used in licensees' reporting, screening, analysing and trending of events, as appropriate. ONR is aware of the use of event codes by operators/licensees, but does not allow them to influence regulatory assessment of events. ONR is primarily concerned with the circumstances surrounding the event, their significance for safety, licensee's corrective actions, and prevention of recurrent events.
- 4.1.3 ONR monitors the response of licensees and duty-holders to incidents and may be satisfied when they act in accordance with adequate arrangements made to address LC7 and other requirements, particularly where a thorough investigation has been undertaken by them and corrective actions identified to help prevent recurrence. Enforcement action involves a graded response, and may begin with discussions, providing advice or issuing verbal alerts on shortfalls to licensee's representatives during a site inspection or following an incident notification to ONR. For more significant incidents, or following an investigation by ONR, a letter containing regulatory requirements to correct an adverse condition may be sent to the licensee or duty-holder. These options are the enforcement measures most frequently employed by ONR inspectors to address non-compliances. However, if deemed appropriate prosecution could be considered in serious cases.
- 4.1.4 Upon receipt of the notification, the CNS inspector should complete the INF 1 security pre-notification proforma and save to the database. This will generate an automatic email to all CNS inspectors informing them of the event.
- 4.1.5 RIS DDS shall maintain oversight of the ONR incident notification email account for incoming notifications from OLDs.

5. ASSOCIATED DOCUMENTS AND REFERENCES

- Incident Notification Form (INF) 1 (most current version to be used)
- Technical Inspection Guide NS-INSP-GD-007: Incidents on the Site and Other Reporting and OpEx Processes.

APPENDIX 1 – CRITERIA FOR NOTIFICATION/REPORTING INCIDENTS TO ONR

TABLE 1 - NUCLEAR SAFETY INCIDENT CRITERIA

| ONR Category | Description | Timing |
|--------------|---|-----------|
| NS01 | Any explosion or outbreak of fire on a licensed site affecting or likely to affect the safe working or safe condition of the nuclear installation. | Immediate |
| NS02 | Any uncontrolled criticality excursion. | Immediate |
| NS03 | Examination, inspection, maintenance, test or operation of any part of the plant revealing that the safe operation or condition of the plant may be significantly affected. | Immediate |
| NS04 | Declaration of a site incident or condition, where personnel or resources are mobilised in response to an unexpected occurrence that creates a hazard to the safe operation of the facility, and/or to the health and safety of personnel on or off the site. | Immediate |
| NS05 | Any operation or condition of plant that is prohibited by operational limits and conditions or operating rules. | Day |
| NS06 | Any uncontrolled or unplanned reactivity excursion. | Day |
| NS07 | Any automatic or manual reactor, chemical processing plant or other nuclear facility shutdown as required by the operational limits and conditions, or as a result of other significant safety related considerations. | Day |
| NS08 | Any examination, inspection, maintenance, test, surveillance, alarm, alert, indication or notice that a system, structure or component reveals any matter indicating that the safe condition, including degradation of design safety barriers providing defence in depth or safe operation of that plant may be affected. | Week |
| NS09 | Any event or abnormal condition that resulted in the manual or automatic operation of a protection system or other engineered safety features thereby challenging safety systems. | Week |
| NS10 | A fire or other internal hazard that posed an actual threat to safety of the nuclear installation or that significantly distracted site personnel in the performance of duties necessary for safe operation. | Week |
| NS11 | Significant inadequacy in or significant failure to comply with the arrangements made under a condition attached to the Nuclear Site Licence or permission granted under a Licence Instrument. | Week |
| NS12 | Any problem or defect in the design, fabrication, construction, commissioning or operation of the installation that results in, or could result in, a condition that had not previously been analysed or that could significantly | Week |

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| | challenge design basis assumptions or the safety case for operation. | |
| NS13 | Any natural phenomenon or other external condition that posed an actual threat to the safety of the nuclear installation or that significantly distracted site personnel in the performance of duties necessary for safe operation. | Week |
| NS14 | Any fault or mal-operation of lifting equipment that had or may have had a significant effect on nuclear safety. | Week |
| NS15 | If a Duly Authorised Person appointed under Licence Condition 12 is prevented by the licensee from continuing to act in that capacity. | Week |
| NS16 | Any event or occurrence that could significantly compromise the effectiveness of the arrangements for emergency preparedness and response on the site. | Week |
| NS17 | If it is intended to reject, in whole or in part, any advice given by a Nuclear Safety Committee to a licensee. | Week |
| EVENTS MAY ADDITIONALLY* BE CATEGORISED BY THE FOLLOWING | | |
| AN01 | Events likely to attract, or that have attracted, significant national media or public attention. | Immediate |

* This code can be combined with one other code from this table.

Notes on Interpreting the Nuclear Safety Incident Reporting Criteria

NS01 - Any explosion or outbreak of fire on a licensed site affecting or likely to affect the safe working or safe condition of the nuclear installation.(Immediate)

Origin of Criterion

This criterion is established in the Nuclear Installations (Dangerous Occurrences) Regulations (DOR) 1965 (Statutory Instrument 1965/1824); Reg. 3 sub-paragraph (c). In addition it is reportable under Ministerial Reporting Criteria (MRC); sub-category (a); the HSE/ONR publication criteria correspond to the MRC.

Discussion

Notification under this criterion requires an element of judgement on the part of the licensee. For example, a small fire on site that did not or could not reasonably be expected to endanger significant safety related plant should not be notified. However if one of the principal safety functions of controlling reactivity or, cooling fuel or containing radioactive material was significantly at risk of failing or was disabled then this would be reportable.

However if the licensee judges it necessary to take significant precautionary action such as shutting down a reactor or process plant and the off-site fire services attended to assist in extinguishing a fire then the event should be notified to ONR. Whether or not this is judged by the licensee to meet MRC remains a matter for the licensee/operator.

The extent of damage to safety related plant from a fire or explosion may not be immediately obvious or fully assessed for some time after a fire is extinguished, but if there is any doubt it would be prudent to promptly report a significant fire under this criterion or other appropriate criteria, such as NS10.

Illustrative Examples

- A fire inside the inner reactor controlled area significant enough to prompt the control room staff to decide to manually shut down a reactor as a precautionary measure; in addition the local off-site fire services attend site to assist the site fire-team in extinguishing the fire.
- Fire, explosion or smoke disabling or severely hampering the operation of the reactor or process plant control room and/or operators therein.

NS02 - Any uncontrolled criticality excursion. (Immediate)

Origin of Criterion

This criterion is established in the Nuclear Installations (DOR) 1965; Reg. 3, sub-paragraph (d). In addition it is reportable under the Ministerial Reporting Criteria (MRC); sub-category (a). The HSE/ONR publication criteria correspond to the MRC.

Discussion

This criterion is not open to interpretation and is relevant to any uncontrolled criticality, whether or not personnel are directly affected.

Illustrative Examples

- Multiple control rod run-out fault on a reactor combined with automatic protection failure.
- Inadvertent or unplanned accumulation of fissile material to the point where a critical mass is assembled and there is sufficient moderation and reflection available to give rise to an uncontrolled criticality event.

NS03 - Examination, inspection, maintenance, test or operation of any part of the plant revealing that the safe operation or condition of the plant may be significantly affected. (Immediate)

Origin of Criterion

Specified in the Ministerial Reporting Criteria (MRC); sub-category (c). The HSE/ONR publication criteria correspond to the MRC.

Discussion

This criterion captures the first section of LC 28(8), except that the word “significantly” is added which is not contained in LC 28(8). Clearly an element of judgement should be exercised by the licensee when reporting under this criterion. Reports under this criterion are intended to cover the most significant findings from planned or reactive examination, maintenance, inspection and testing (EMIT) or through general plant surveillance or walk-down, where a significant fault or adverse condition is discovered that could have resulted in significant impairment of a safety function or have the potential to cause harm to persons on or off site.

When considering whether to notify under this criterion consideration should be given to assessing the significance of the impact on the plant’s provisions for defence in depth. Events where either one designed safety protection barrier of a system of two or more

barriers remained when an initiating event occurred or no designed safety protection barriers remained but an initiating event did not occur, may lead to a plant being shut down on safety grounds (see also NS 07). Such conditions may lead to the need to prevent, or consider preventing, start-up of a plant until remedial work to rectify an adverse safety condition is completed. If in the judgement of the operator the event in question is not significant enough for this category, then consideration should be given to making a notification under NS08.

Illustrative Examples

- Following a fire in a plant area the subsequent investigations reveal that significant safety related equipment that was intended to be qualified against such a fire was not suitably protected against a fire and could have or did fail.
- The testing of the quality of the diesel fuel in the feed tanks to more than one Emergency Diesel Generator (EDG) revealed that it was contaminated and could have prevented all the EDGs performing their intended safety function, or other such common cause failure.

NS04 - Declaration of a site incident or condition, where personnel or resources are mobilised in response to an unexpected occurrence that creates a hazard to the safe operation of the facility, and/or to the health and safety of personnel on or off the site. (Immediate)

Origin of Criterion

LC11 - Emergency Preparedness.

Discussion

This criterion is aimed at conditions and incidents on the site that are not classified as nuclear emergencies but nevertheless lead to one or more of the site's incident control centres being set up to control response to nuclear or radiological related event by persons on or off the site.

Illustrative Examples

- A release of contaminated carbon dioxide that leads to a site muster being implemented and the incident/emergency control centre being set up.
- A flood of sufficient size in a facility containing nuclear safety related plant or equipment, radioactive material or waste that necessitates the assistance of the off-site local fire service.

NS05 - Any operation or condition of plant that is prohibited by operational limits and conditions or operating rules. (Day)

Origin of Criterion

LC23 (3): Operating Rules.
IAEA Safety Guide NS-G-2.11: A System for the Feedback of Experience from Events in Nuclear Installations.

Discussion

The requirement of LC23 is to ensure that all operations that may affect safety are supported by an adequate safety case and this safety case identifies the limits and conditions for

operation (LCO) which ensure that the plant or process remains safe i.e. it defines a “safe operating envelope”.

The LCO include values for safety limits, limiting safety system settings, limiting conditions for operation, levels for surveillance, design features, and various administrative and organizational requirements, directly connected with safe operations. Occurrences where operating limits and conditions are not adequate or are not being complied with should invoke LC7 incident notification and investigation arrangements, leading to ONR being notified.

There may be instances where it becomes apparent at some later time or date that an operation or condition prohibited by LCO or operating rules occurred but the operators were unaware of it. If such a case is identified then the occurrence should be retrospectively notified to ONR under this criterion.

Illustrative Examples

- If a component in a safety system (such as a pump) was found to be inoperable for more than 7 days, but was only allowed by the operational limits and conditions to be out of service for a maximum of 7 days, then this would be reportable as a non-compliance with operating rules.
- For Nuclear Power Plants (NPPs) with Technical Specifications (TS) as the primary documentation for ensuring that operations are at all times compliant with the Operating Rules, then any of the following occurrences should be notified under this criterion:-
 - failure to enter a TS action condition;
 - failure to exit an action condition in the permitted time; or
 - intentional entry into a condition where this is not permitted.
- Where an unplanned build-up of fissile material or the inadvertent introduction of material having a moderating effect contravenes the local criticality rules, limits or conditions.
- Foreign material was identified in a new fuel-stringer, operations were halted leaving the stringer suspended with the potential to be dropped 2.5m. During recovery from the situation, inappropriate decisions were made, leading to injection of expanding polyurethane foam into the guide tube below the fuel. The foam was a fire hazard, and a potential moderator in the event of the fuel dropping. This was in contravention of local criticality control arrangements.

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| NS06 - Any uncontrolled or unplanned reactivity excursion. (Day) |
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Origin of Criterion

LC23

Discussion

This criterion is intended for incidents where a change in reactivity occurs, which was not predicted, anticipated or adequately controlled at all times.

Illustrative Examples

- Operators, unaware of reactor conditions in respect of Xenon gas, manually withdraw control rods giving rise to an increase in reactivity, which they did not anticipate.

NS07 - Any automatic or manual reactor, chemical processing plant or other nuclear facility shutdown as required by the operational limits and conditions, or as a result of other significant safety related considerations. (Day)

Origin of Criterion

IAEA Safety Guide NS-G-2.11: A System for the Feedback of Experience from Events in Nuclear Installations.

Discussion

This criterion is intended for those incidents whereby the licensee's arrangements or other significant safety related considerations require the plant to be manually shutdown, or installed safety provisions automatically actuate causing a plant to shut down. ONR should be provided with notification of conditions affecting safety that are significant enough to warrant the plant be shut down.

There are exceptions where notification is not necessary, as follows:-

Periodic shutdown (often called statutory outage) under LC30 to perform maintenance schedule work;

Shutting down a reactor for routine refuelling purposes; and

Shutting down a chemical process plant when a routine batch production run has been completed.

Shutting down a radioactive waste store.

The criterion ends with the words "or from other significant safety related considerations". This phrase is intended to cover occurrences when it is not strictly necessary to shut down immediately but has been judged so because a condition adverse to safety has been identified, and if left unchecked could worsen, ultimately leading to an automatic or manual shutdown.

Illustrative Examples

- If a limiting condition for reactor operation requires that the plant changes mode from operation at power to a hot or cold shutdown mode, because of the unavailability of an essential electrical transformer.
- Where a shutdown is necessary to give safe access to workers to effect a significant repair or perform other inspections, then this should be notified.

NS08 - Any examination, inspection, maintenance, test, surveillance, alarm, alert, indication or notice that a structure, system, or component reveals any matter indicating that the safe condition, including degradation of design safety barriers providing defence in depth or safe operation of that plant may be affected. (Week)

Origin of Criterion

LC 28 (8) – Examination, Inspection, Maintenance and Testing

IAEA Safety Guide NS-G-2.11: A System for the Feedback of Experience from Events in Nuclear Installations.

Discussion

This criterion is intended to capture incidents falling under the ambit of LC28(8) but which do not meet the Ministerial Reporting Criteria category (c) which uses the words of LC28 (8) with the addition of the word “significantly”.

This criterion should be considered, where routine or reactive maintenance work or operational surveillance and monitoring on safety related systems reveals that a safety function has or may have been degraded or compromised, then notification may be necessary under this criterion.

The term surveillance includes TS requirements and covers conditions revealed not only from routine EMIT activities but also from general plant walk-downs and other structure, system and component monitoring and functionality checks.

When considering potential notifications under this criterion, some judgement will need to be exercised by the licensees. It may be that a single isolated incident, may not merit a notification to ONR, but if a significant adverse trend becomes apparent through repeat events, revealing systemic or cultural safety issues, then this should be notified under this criterion.

This criterion should be used where a common cause failure mode or condition is identified with the potential to affect more than one train in a safety system or a number of similar components in a safety system with redundancy, and including potential safety consequences for other similar plants.

This criterion is also intended to cover events where the plant status is discovered not to be in its expected configuration, and this has compromised or may have compromised the delivery of a safety function, including challenging or defeating measures provided for defence in depth.

This criterion applies to material (e.g. metallurgical or chemical) conditions that cause degradation of the principal safety barriers (i.e. fuel cladding, reactor or chemical plant pressure boundary, or the containment or confinement). Degradation of a principal hazard barrier may be indicated by the necessity to take corrective action to restore barrier integrity.

Illustrative Examples

- An EMIT(including Maintenance Schedule) routine on significant safety related plant, such as an emergency diesel generator or emergency boiler feed pump, reveals a failure of the equipment to deliver its specified safety function, then this should be notified.
- A monthly functional test revealed that a main steam isolation valve (MSIV) did not stroke properly as a result of its pilot solenoid operated valve having failed. Subsequent investigations revealed that the use of incorrect lubricant had impaired all the MSIV solenoid valves’ motion and consequently this led to unsatisfactory operation of all the MSIV.
- More than one instrument, alarm or indication found to be incorrectly set such that conditions adverse to safety would not be indicated to the operators as expected.
- If during a plant-walk-down a normally open valve on a train of the emergency cooling system is discovered to be closed, and although not fully disabling the system, it is clear the function could have been seriously impaired if a demand had been placed upon it.

- A plant-walk-down revealed a captive interlock key that was able to be released without being activated by the controlling key. Further investigation revealed that a fault had disabled the safety feature on more than one interlock, potentially providing unauthorised access to areas of high levels of radiation. (Note: this could also be considered for notification under NS11 as a design, manufacture or fabrication issue).
- Nuclear fuel cladding failures in the reactor, decay store, storage pool or other container.
- Welding or material defects which are considered unacceptable under design codes or other safety case referenced standards, such as defect acceptance criteria.
- Unexpectedly severe wall thinning in pipes or vessels that if left unchecked may affect nuclear safety.
- Loss of containment function or integrity where leak rate tests reveal greater than allowable levels of leakage.
- A plant transient causes a significant challenge to safety related plant such that a justification for continued operation is required and an assessment of the effect on remaining component life is necessary.
- Several nuclear safety fire doors, that are integral to the safety case requirement for fire compartment boundaries to be intact at all times, are found to have been left open on different occasions over a short period of time, thereby indicating a significant adverse trend.

NS09 – Any event or abnormal condition that resulted in the manual or automatic operation of a protection system or other engineered safety features thereby challenging safety systems. (Week)

Origin of Criterion

LC27

IAEA Safety Guide NS-G-2.11: A System for the Feedback of Experience from Events in Nuclear Installations.

Discussion

This criterion is intended to report incidents whenever a significant safety related system, mechanism, device or circuit actuates either manually or automatically. This is based on the premise that these systems are provided to mitigate the consequences of significant events, and as such they should function as designed when called upon, and they should not be challenged frequently or unnecessarily. ONR is interested both in incidents where a system was demanded to mitigate the consequences of an event, and those where a safety system actuated unnecessarily. However, there are some exceptions, such as actuation from any part of a pre-planned maintenance or testing sequence, or if the actuation occurred after the safety function had already been performed.

ONR has not specified which engineered safety systems are applicable here so a degree of judgement will be necessary. Typical nuclear safety systems to consider would include reactor protection systems, emergency power systems, emergency cooling systems, emergency ventilation systems and pressure relief mechanisms. The intent is to seek notification of instances of actuation of systems that mitigate the consequences of significant events. Usually this would not necessarily include single component actuations for redundant provisions because these by themselves do not provide the totality of the protection, however where it provides a critical safety function, it should be notified to ONR.

Illustrative Examples

- If there was a failure in an instrument line connected to a reactor coolant system and a resultant leak at a rate just sufficient to place a demand on and then actuate a pump to compensate for the loss of coolant event.

NS10 - A fire or other internal hazard that posed an actual threat to the safety of the nuclear installation or that significantly distracted site personnel in the performance of duties necessary for safe operation. (Week)

Origin of Criterion

IAEA Safety Guide NS-G-2.11: A System for the Feedback of Experience from Events in Nuclear Installations.

Discussion

The actual threat referred to in this criterion is from internal events, principally fires, but also from release of toxic/asphyxiating gases, flooding, radioactive releases etc. The intent is to ensure notification of events that threaten or may compromise the safety of the plant or disrupt personnel in the performance of duties necessary for safe operation.

The phrase “significantly distracts personnel” applies to those events which significantly affect the ability of site personnel to perform safety related activities.

Any fire at a nuclear installation represents a shortfall in expected standards. The threat posed by a fire to a nuclear installation is well documented and the consequences of such events can be severe. Fires have the potential to affect the operation of safety systems with the consequence of quickly eroding defence-in-depth provisions that most nuclear plants are designed with. Limiting the consequences of fires that threaten plant protecting nuclear safety or containing radioactive material is of interest to ONR therefore consideration should be given to notifying ONR of relatively minor fires. In addition, it should be noted that fires on nuclear sites are likely to attract media interest, and thus may also be considered for notification to ONR under the category AN01.

Illustrative Examples

- If a release of gas or smoke necessitated the evacuation of a room e.g. a local control room for which access was needed to undertake safety related plant operations, then it should be notified under this criterion.
- Any unintended combustion whether or not locally or self-extinguished, even where flames were not observed, in an area or building where radioactive material is contained or where plant that may affect nuclear safety is housed.

NS11 - Significant inadequacy in or significant failure to comply with the arrangements made under a condition attached to the Nuclear Site Licence or permission granted under a Licence Instrument. (Week)

Origin of Criterion

Site Licence Conditions.

Discussion

This criterion is open to interpretation and will require some judgement on the part of the licensee. Often it is possible to make an error in following a procedure or instruction or to find documented arrangements that might be improved by clarification or addition, however such occurrences are not often considered to be significant in terms of safety. This criterion is aimed at those events deemed significant enough to have had or potentially have an effect on nuclear safety or have degraded defence-in-depth.

Illustrative Examples

- A failure to undertake Maintenance Schedule work by its last allowable due date under the arrangements without adequate interval extension arrangements having been put in place.
- A periodic review of the Plant Maintenance schedule identified that some safety related equipment items had not been placed on to the plant's Maintenance Schedule. This shortfall related to extensions to a new facility over a period of several years, consequently, this safety related equipment had not been maintained in accordance with the plant safety case (Note: this is also a potential notification under NS07 but illustrates a systematic failure to comply with the arrangements).
- A failure to follow the highest QA graded procedures step-by-step, that leads to an unacceptable condition where nuclear safety or defence-in-depth is degraded.

NS12 – Any problem or defect in the design, fabrication, construction, commissioning or operation of the installation that results in, or could result in, a condition that had not previously been analysed or that could significantly challenge design basis assumptions or the safety case for operation. (Week)

Origin of Criterion

LC23

IAEA Safety Guide NS-G-2.11: A System for the Feedback of Experience from Events in Nuclear Installations.

Discussion

This is intended to cover a wide range of activities whereby defects, faults or other conditions are discovered that have not been considered in the existing safety case or that could affect the assumptions made by, or intent of, the plant's designers.

It is envisaged that this criterion will be used to consider reporting of significant safety related occurrences during the construction, manufacturing and commissioning phases of a plant's lifecycle.

Illustrative Examples

- A communication from a licensee's supplier that a particular electrical circuit breaker has a non-revealing fault that could cause binding (for example due to the use of a lubricant that breaks down with age) with consequent common mode failure to actuate on demand. If the plant had a number of these breakers in service in various safety systems there would be a cause for concern and this criterion would suggest making a notification.

- Discovery of a safety system designed to meet the single failure criterion not meeting this requirement.
- If fire barriers, assumed in the original design are found to be missing, such that the required degree of separation for redundant safe shutdown trains is lacking (Note this alternatively could be notified under criterion NS07).
- Concrete poured on the nuclear island is found not to meet the designer's specification.

NS13 - Any natural phenomenon or other external condition that posed an actual threat to the safety of the nuclear installation or that significantly hampered site personnel in the performance of duties necessary for safe operation. (Week)

Origin of Criterion

IAEA Safety Guide NS-G-2.11: A System for the Feedback of Experience from Events in Nuclear Installations.

Discussion

Similarly worded to NS10, this criterion is intended to cover external natural events such as earthquakes, fires, high winds, lightning, snow, ice, floods and external hazards that might arise from any industrial facilities nearby or transportation accidents. The judgement to be exercised here is in deciding if there is an actual threat to the plant from the external hazard i.e. where it challenges the ability of the plant to continue to operate in a safe manner.

The phrase "significantly hampers personnel" again as in NS08 applies narrowly, i.e. only to those events which significantly hamper the ability of site personnel to perform safety related activities. The judgement to be made here for example, in the case of heavy and prolonged snowfalls, is to what extent personnel were significantly hampered.

Illustrative Examples

- High tides and or flooding, leading to ingress of debris to the intake of an NPP blocking the coarse inlet strainers thus starving the plant of cooling water and challenging the efficacy of the ultimate heat sink and/or other safety related cooling systems.
- Snow prevents shift relief personnel from reaching the plant for several hours, if the delay were such that that the on-site personnel were hampered, say because they became excessively tired or find it necessary to operate under complement to allow for rest, then this could be notified.
- On a foggy day the pilot of a light aircraft loses his bearings and the plane is seen to be flying very close to the nuclear installation its engines audible to site personnel, thus clearly well within the no-fly zone.

NS14 - Any fault or mal-operation of lifting equipment that had or may have had a significant effect on nuclear safety. (Week)

Origin of Criterion

IAEA Safety Guide NS-G-2.11: A System for the Feedback of Experience from Events in Nuclear Installations.

Discussion

Incidents associated with lifting machinery or equipment in nuclear plants are of interest because the potential for damage to safety related plant is significant when failures occur. This criterion is to cover failure of lifting equipment to perform as it should, from misuse or poor maintenance of the equipment by operators. This criterion does not just cover actual physical damage to safety related plant but also significant procedural deviations and near-misses where loss of control of a load might have easily damaged safety related plant, but by chance did not.

Illustrative Examples

- A crane is being used to remove a primary containment feature and the load is "locked" in place because attachment fixtures were not removed in advance. The crane overload protection operates or part of the lifting tackle fails at the point of weakness and damage to the plant occurs.
- Operators were lifting a neutron source from the reactor core using lifting equipment designed specifically for the purpose i.e. to restrict the lift height, thus protecting them from the source. They experienced difficulty with the lifting equipment and decided to deviate significantly from the procedure, and use the charge hall crane thus circumventing the engineered safety feature and potentially exposing them to an unplanned significant radiation exposure should the source be lifted too far. Note: this incident could also be considered to fall under ONR notification category NS11.
- Whilst transferring contaminated engineering waste to a container, part of the load weighing approximately 150 kg slipped and fell 10m down a hoist-well. No personnel were injured, however there was a spread of radioactive contamination within a temporary Controlled Area as a result of the rupturing of the load's PVC containment wrapping.
- During examination of the lifting yoke for a nuclear flask, a fault was identified by the Competent Person. The fault was judged to be "of immediate or imminent risk of danger to personnel" and an Immediate Report was raised and copied to HSE. The yoke was not in use at the time.

NS15 - If a Duly Authorised Person appointed under licence condition 12 is prevented by the licensee from continuing to act in that capacity. (Week)

Origin of Criterion

LC12(5) – Duly Authorized Persons unfit for the role.

Discussion

This criterion is aimed at identifying when Duly Authorised Persons with important safety related duties e.g. reactor desk operators, are deemed to be unfit to meet the requirements of the post. This may reveal an issue with training or other arrangements and which ONR should be informed about.

Exceptions to notifying under this criteria include where individuals may be absent from work for long periods due to sickness, they leave their employment or where they are transferred for career development purposes to other work which does not require DAP status.

Illustrative Examples

- An operator fails to reach the required standard during their simulator re-assessment forming part of the periodic re-authorisation process and as a consequence is not re-authorised within the period defined in the LC12 arrangements.

NS16 - Any event or occurrence that could significantly compromise the effectiveness of the arrangements for emergency preparedness and response on the site. (Week)

Origin of Criterion

LC11 Emergency Arrangements.

Discussion

This criterion relates to events which could potentially adversely affect the response of the licensee to deal with an accident or emergency on and off site. Incidents which may adversely affect response activities should be notified. However, some judgement will be necessary on the part of the licensees; an isolated failure of a component such as a radio-set or phone or a flat tyre on a non-specific vehicle need not be notified. Failure of a complete communications system or of an important vehicle declared in the arrangements to be deployed should be notified to ONR.

Illustrative Examples

- The site siren and public address system do not function adequately during an incident on the site or as revealed during rehearsals of the emergency arrangements.
- The site radio communications system does not function adequately during an incident on the site or as revealed during rehearsals of the emergency arrangements.
- The minimum staffing levels necessary to discharge the responsibilities in the emergency plan are not deployed on the site.
- The site muster arrangements used to account for persons do not function adequately during an incident on the site or as revealed during rehearsals of the emergency arrangements.
- Failure of external notification systems for an extended period.
- The telephone system installed in the site's emergency control centre fails to operate, requiring communications to be carried out using mobile phones.

NS17 - If it is intended to reject, in whole or in part, any advice given by a Nuclear Safety Committee to the licensee. (Week)

Origin of Criterion

LC 13(10) - Nuclear Safety Committee.

Discussion

This criterion is demanded directly by the licence condition, and as such is clear and legally binding. The licence condition states that ONR should be notified as soon as practicable, which for the purposes of ONR is considered to be within a week.

Illustrative Examples

None provided.

AN01 – Events likely to attract, or that have attracted, significant national media or public attention. (Timing - Immediate).

Origin of Criterion

For public confidence in ONR as a Regulatory body, see paragraph 4.4.3, this criterion can be used as an urgent coding.,

Discussion

This criterion is a “catch-all” aimed at events or occurrences which have the potential to achieve a high public profile but do not appear to meet any of the immediate reporting criteria included in this document. Often these events may be identified for reporting on by the national media. As such it is useful for ONR to be notified of these events in anticipation of requests for comment by other interested parties.

This criterion may be used with or without any of the other codes from tables in this guidance, to give immediate effect to a notification. The presence or absence of other codes will provide an initial indication to ONR of the extent of any follow-up required.

This criterion is not intended to cover attendance at site by external response services for routine matters such as an ambulance transporting a worker to hospital for treatment of a minor injury or a precautionary check-up, however if emergency services attend with flashing blue lights and sirens, this should be reported under AN01.

The INF1 is it intended to cover matters where only local media interest is likely.

Illustrative Examples

- Significant industrial or protest group action.
- An earthquake occurs of intensity 3.9 on the Richter scale, with its epicentre some 50 miles from the site; its effects are felt by personnel on site. As a result, site personnel undertake a series of plant inspections however no adverse effects on safety related plant are identified.
- Site decides to use its emergency response arrangements mustering system to account for personnel following an uncontrolled release of clean carbon dioxide from the site’s storage tanks.
Site provides an immediate notification to another agency or department in devolved administrations of an event with potentially national interest.

TABLE 2 - RADIOLOGICAL SAFETY INCIDENT CRITERIA

| ONR Category | Description | Timing |
|--------------|---|-----------|
| RS01 | Any occurrence on a licensed site involving the emission of ionising radiations or the release of radioactive or toxic substances, causing or likely to cause death, or serious injury to persons on or off the site. | Immediate |
| RS02 | Abnormal occurrences leading to a radioactive substance which has been:- (a) released or is likely to have been released into the atmosphere as a gas, aerosol or dust; or (b) spilled or otherwise released in such a manner as to give rise to significant contamination; and which exceeds or is expected to exceed, the quantities set out in Column 4 of Schedule 8 to the IRR 1999, except where the release is in a manner specified in an Authorisation under the Environmental Permitting Regulations 2010 (EPR 2010) or the Radioactive Substances Act 1993 (RSA 93) in Scotland. | Immediate |
| RS03 | Abnormal occurrences leading to a release or suspected release or spread of radioactivity, on or off site, which requires special action or special investigation by the operator. | Immediate |
| RS04 | Any abnormal occurrence giving rise to an uncontrolled or unauthorised leakage or escape of radioactive material or waste which exceeds 50% of the limits set out in Column 4 of Schedule 8 to the IRR 1999. | Day |
| RS05 | A confirmed breach of, or discharge expected to breach quantitative limits of a Certificate of Authorisation for the disposal of radioactive waste issued under the EPR 2010 or RSA 93. | Day |
| RS06 | An incident or occurrence that leads to a person receiving an intake, or suspected intake of radioactive material, above that permitted by the local arrangements. | Week |
| RS07 | Discovery outside a controlled area boundary of radiation or contamination, including contamination on equipment, clothing or skin, significantly above that permitted by the local arrangements. | Week |
| RS08 | Confirmed exposure to radiation of any individual which exceeds or is suspected to exceed, the dose limits specified in the IRR 1999. | Day |
| RS09 | Where any individual is confirmed to have received an annual effective dose greater than the level set as subject to investigation under IRR99 Regulation 8(7). | Day |
| RS10 | Where assessment confirms that the average effective dose to specified classes of persons exceeds the level ONR has Specified under LC 18 (1). | Day |
| RS11 | An occurrence whereby exposure of any individual worker | Week |

| | | |
|--|---|-----------|
| | is confirmed to have received an effective dose that exceeds or is likely to exceed 1mSv above that estimated for the task. | |
| RS12 | The effective doses received by intervention personnel who receive emergency exposures during a REPPIR declared emergency, and where a separate dose assessment has been completed following the emergency. | Week |
| RS13 | Where there is reasonable cause to believe that a quantity of a radioactive substance specified in column 5 of Schedule 8 to the IRR 99 and which was under an employer's control is lost or has been stolen. | Day |
| RS14 | Any event where radioactive material or waste was inadvertently brought onto or transported off the licensed site. | Day |
| EVENTS MAY ADDITIONALLY* BE CATEGORISED BY THE FOLLOWING | | |
| AN01 | Events likely to attract, or that have attracted, significant national media or public attention. | Immediate |

* This code can be combined with one other code from this table.

Notes on Interpreting the Radiological Safety Incident Reporting Criteria

It should be noted that there is specific guidance in the Ionising Radiation Regulations (IRR) 1999 regarding information to be contained in a report of events involving exposure to radiation.

RS01 - Any occurrence on a licensed site involving the emission of ionising radiations or the release of radioactive or toxic substances, causing or likely to cause death, or serious injury to persons on or off the site. (Immediate)

Origin of Criterion

This criterion is established in The Nuclear Installations (Dangerous Occurrences) Regulations 1965 (Statutory Instrument 1965/1824); Reg. 3 sub-paragraph (a) and the Ministerial Reporting Criteria (MRC) Category (a). The HSE/ONR publication criteria correspond to the MRC.

Discussion

This criterion applies to events where doses received by persons are above about 1Sv i.e. more than fifty times the statutory limit for annual whole body dose. High doses of radiation (1-10 Sv) will kill a large number of body cells and may lead to serious injury. Higher doses may lead to death within a relatively short time of exposure. These "so called" deterministic effects do not occur below a threshold of around a few Sv.

Illustrative Examples

None provided.

RS02 - Abnormal occurrences leading to a radioactive substance which has been:-
 (a) released or is likely to have been released into the atmosphere as a gas, aerosol or dust; or

(b) spilled or otherwise released in such a manner as to give rise to significant contamination; and which exceeds or is expected to exceed, the quantities set out in Column 4 of Schedule 8 to the IRRs 1999, except where the release is in a manner specified in an Authorisation under the EPR2010 or the RSA93 in Scotland.
(Immediate)

Origin of Criterion

ONR Ministerial Reporting Criteria (MRC) - Category (d). IRR 1999 Regulation 30(1). The HSE/ONR publication criteria correspond to the MRC.

Discussion

This criterion needs little explanation as it is based on quantitative limits set out in the IRRs and is therefore a legal obligation to notify ONR promptly.

The exception to this is where the spillage is in an enclosure or other such localised facility, designed to prevent the release going beyond that facility e.g. a spill in a glove-box. However, this exception is not intended to cover releases affecting general working areas where personnel could receive significant exposure as a result of a leakage or spillage e.g. a leak into a bund around a tank that is open to the atmosphere, either inside a building or in the open air.

Illustrative Examples

None provided.

RS03 - Abnormal occurrences leading to a release or suspected release or spread of radioactivity, on or off site, which requires special action or special investigation by the Operator. (Immediate)

Origin of Criterion

ONR Ministerial Reporting Criteria (MRC) Cat. (e). The HSE/ONR publication criteria correspond to the MRC.
LC 34 – Leakage and Escape of Radioactive Material and Radioactive Waste

Discussion

This criterion is intended to cover only significant releases of radioactivity not meeting the other quantitatively based leakage and release criteria. This criterion requires judgement to be used to interpret what constitutes special action or investigation. Any unexpected spillage or release would usually require some form of remedial action by the operator to clean up any residual radioactivity. However to assist in judging whether notification is warranted then events deemed to require special action or investigation could include:-
Special countermeasures, such as non-routine monitoring outside controlled areas, taken to prevent unacceptable exposures;

Any release requiring action off the licensed site;

Discovery of radiation or contamination levels requiring either of the following actions:

- (i) Limitation of access for distances greater than several metres outside designated areas; or

- (ii) Significant interference with normal access by the public to areas on the licensed site.

A confirmed release of radioactivity, which requires evacuation of a significant area of the plant for at least 24 hours, apart from purely precautionary evacuation.
Extensive work needed to decontaminate an area using non-standard procedures.

Illustrative Examples

- Dripping liquor was detected from a vessel & cell ventilation condensate drain line, fastened to the structural supports of a pipe-bridge that was situated outside any designated controlled area and near a footpath. It was thought that the dripping liquor might be chemical in nature but was not immediately considered to contain radioactive material. Eventually, some months later checks of the area surrounding the leak revealed the presence of significant quantities of radioactivity. The area was cordoned-off and personnel access restricted for several metres until the ground contamination was removed.

RS04 - Any abnormal occurrence giving rise to an uncontrolled or unauthorised leakage or escape of radioactive material or waste which exceeds 50% of the quantities set out in Column 4 of Schedule 8 to the IRR 1999. (Day)

Origin of Criterion

IRR99.

LC34 (2) - Leakage and Escape of Radioactive Material and Radioactive Waste.

Discussion

This criterion is aimed at those events which are not reportable to ministers or breach legal limits but which nevertheless represent a loss of control over radioactive material which the regulator should be notified about. Events where leakage and escape of radioactive material or radioactive waste exceeds legal limits or reach the levels that ministers are required to be informed about are rare. This criterion attempts to set a threshold level for release and escape that should be notified under LC34 (2).

The reporting level of 50% in this criterion is considered to represent a figure that provides a pragmatic trigger to reflect failures in containment and control of radioactive material or waste that should be notified to ONR.

The exception to this is where the spillage is in an enclosure or other such localised facility, designed to prevent the release going beyond that facility e.g. a spill in a glove-box. However, this exception is not intended to cover releases affecting general working areas where personnel could receive significant exposure as a result of a leakage or spillage e.g. a leak into a bund around a tank open to the atmosphere, either inside a building or in the open air.

Illustrative Examples

- A container of tritiated water is knocked over and spills its contents onto a laboratory floor; the liquid collects into a pool. The laboratory is temporarily evacuated whilst established contingency plans are implemented to clean up the residual water. The estimated total amount of tritium contained in the spillage is more than 500 GBq.

RS05 - A confirmed breach of, or discharge expected to breach quantitative limits of a Certificate of Authorisation for the disposal of radioactive waste issued under the EPR 2010 (RSA93 in Scotland). (Immediate)

Origin of Criterion

Environment Agency/SEPA Ministerial Reporting Criteria

Discussion

This criterion needs little explanation as the quantitative limits are clearly set out in the sites' Certificates of Authorisation and is therefore a legal obligation. Although primarily of interest to the environment agencies in England and Wales (EA) or Scotland (SEPA) and reportable to ministers nonetheless it is important that ONR also knows about such events as there may be relevant issues associated with the circumstances giving rise to the breach. The liaison arrangements between ONR and EA/SEPA allow for joint investigations into the circumstances surrounding events and matters of mutual interest often arise from such joint investigations.

Illustrative Examples

None provided.

RS06 - An incident or occurrence that leads to a person receiving an intake, or suspected intake of radioactive material, above that permitted by the local arrangements. (Week)

Origin of Criterion

LC 34 – Leakage and Escape of Radioactive Material and Radioactive Waste.

Discussion

This criterion does not set any numerical threshold levels for notification. It is aimed at occurrences which are unplanned or unexpected, where persons ingest, inhale or receive an intake of radioactive material through a wound. Later analysis may reveal that the intake was very small but such an event represents a loss of control and should be notified to ONR.

Illustrative Examples

- An operator inadvertently enters a controlled area above the designation that he is authorised to and without wearing the appropriate respiratory protection, consequently they inhale airborne radioactive material present in the controlled area.
- A maintenance technician is working on a pipe and unbolts or otherwise breaks the pipe containment, thus exposing him/herself to radioactive material that was not expected to be there, some of the material is inhaled before the local radioactivity in air monitors begin to alarm and the technician leaves the workplace in response.

RS07 - Discovery outside a controlled area boundary of radiation or contamination, including contamination on equipment, clothing or skin, significantly above that permitted by the local arrangements. (Week)

Origin of Criterion

LC 34 – Leakage and Escape of Radioactive Material and Radioactive Waste.

Discussion

This criterion is aimed at occurrences which are unplanned or unexpected, where significant contamination or radiation is discovered to exist outside a designated controlled area. Such incidents represent a loss of control and should be notified to ONR.

The significance of a radiological event should be judged on the basis of levels specified in local arrangements. Events involving levels significantly above those specified should be notified to ONR.

Illustrative Examples

- A reactor technician is working inside a contamination controlled area which has required her to wear specific contamination control PPE over her normal work-wear. After working in the area she removes her contamination control PPE in the local sub-change-room and crosses the 'dirty/clean' barrier into a radiation controlled area. When she monitors herself using the installed area exit portal monitoring equipment, the equipment goes into alarm identifying significant contamination on her wrist and cuff of her shirt.
- During a routine radiological survey of pavements outside a building containing radiological controlled areas, a Health Physics Monitor detects a dose rate of 100 microSv per hour at several points along the pavement adjacent to building windows.

RS08 - Confirmed exposure to radiation of any individual which exceeds or is suspected to exceed, the dose limits specified in the IRR 1999. (Day)

Origin of Criterion

Ministerial Reporting Criteria (MRC) Cat. (b) and IRR 1999 Regulation 25(1). The HSE/ONR publication criteria correspond to the MRC.

Discussion

This criterion is an amalgamation of two criteria but needs little explanation as it covers confirmed exposures above the statutory dose limits set out in Schedule 4 of the IRRs 1999.

Illustrative Examples

None provided.

RS09 - Where any individual is confirmed to have received an annual effective dose greater than the level set as subject to investigation under IRR99 Regulation 8(7). (Day)

Origin of Criterion

IRRs - 1999 Regulation 8(7).

Discussion

This criterion needs little explanation as its origin is contained in the IRRs and is currently set at a dose level of 15mSv, or whatever lower level is specified by the employer in local arrangements.

Illustrative Examples

None provided.

RS10 – Where assessment confirms that the average effective dose to specified classes of persons exceeds the level ONR has Specified under licence condition 18(1). (Day)

Origin of Criterion

LC 18 (1) - Radiological Protection

Discussion

This criterion is required by Licence Condition 18 only if a licence instrument i.e. a Specification has been issued by ONR, and in this case it becomes a legal obligation. A number of (but not all) licensed sites have LC18 specifications issued to them and the dose level contained in the Specification is usually 5mSv average effective dose for classified workers. If this level is reached then the requirement is to notify ONR forthwith, which for practical purposes is set at within a day of it being confirmed.

Illustrative Examples

None provided.

RS11 – An occurrence whereby any individual worker is confirmed to have received an effective dose that exceeds or is likely to exceed 1mSv above that estimated for the task. (Week)

Origin of Criterion

IRR99 and ALARP (As Low as Reasonably Practicable) principle

Discussion

This criterion is intended to cover events where individual(s) receive a dose above that expected for a discrete task or activity. It is worth noting that the level set here is 1mSv, this is because UK licensees generally have a successful approach to radiological protection and rarely does a single unplanned event lead to an individual exposure of above 1 - 2mSv. Thus setting the level in this criterion at 1mSv is in expectation of receiving notifications where a task or activity has not been controlled to the industry's norm and results in the doses received by individuals significantly exceeding that planned for the work.

This criterion is not meant to be applied to work where there are planned activities whereby entry into a particular area is expected to give rise to doses to workers of the order of several mSv, unless the dose uptake exceeds that which was expected by more than 1mSv. For example, where weld repairs to vessel internal components results in a group of welders receiving individual effective doses between 5-10 mSv, however these doses are in accordance with predictions made before the work began.

Illustrative Examples

- During routine waste moves a consignment containing two neutron sources was transferred into a lead shielded flask. During health physics monitoring, the surveyor decided to monitor the flask for neutrons; contact dose rates were found to be 10mSv/h. The operators undertaking the work received an estimated dose of 1.5mSv i.e. 1mSv greater than the predicted or expected dose value range.
- During a vessel entry to install lighting prior to commencement of repair work, an operator discovers and recovers a piece of steel lying on a ledge in the vessel. This is thought to be an item left in the vessel from work previously undertaken some year ago, and has an associated dose rate of 100mSv/hr. The operator receives an effective dose of 4mSv, which is 2mSv above that planned for the work.

RS12 - The effective doses received by intervention personnel who receive emergency exposures during a REPPIR declared emergency, and where a separate dose assessment has been completed. (Week)

Origin of Criterion

Radiation Emergency Preparation, Preparedness and Information Regulations (REPPIR) Regulation 14(1)

Discussion

This criterion is one required under REPPIR where the doses received by intervention personnel in a REPPIR emergency are subsequently assessed. The results of the assessment whatever the effective doses received should be notified to ONR.

Illustrative Examples

None provided.

RS13 - Where there is reasonable cause to believe that a quantity of a radioactive substance specified in column 5 of Schedule 8 to the IRR 99 and which was under an employer's control is lost or has been stolen. (Day)

Origin of Criterion

IRRs - 1999 Regulation 30(3) & (4).

Discussion

This criterion needs little explanation as it is contained in the IRRs and is therefore a legal requirement but is only for material that meets the thresholds specified in Col 5 of Sch. 8. Security Criterion SC10.5e, also covers loss or theft of material, however it has no radio-nuclides or quantities specified.

Illustrative Examples

1. A routine (weekly) inventory check of sources reveals that a 1.5 MBq Cobalt 60 source used for checking fixed plume monitoring gamma detectors is missing from its normal

storage location. It was last used 2 days previously, and a check of other storage locations has failed to find it.

RS14 - Any event where radioactive material or waste was inadvertently brought on to or transported off the licensed site. (Day)

Origin of Criterion

LC 34 – Leakage and Escape of Radioactive Material or Waste.

Discussion

This criterion is to notify ONR of events where radioactive material or waste is unexpectedly brought onto or taken off a licensed site, not in accordance with established arrangements or where the amount of material moved was significantly different to that authorised. It does not include movement on and off the licensed site of excepted matter or radioactive material or waste which is exempt from legislation e.g. smoke detectors containing trace amounts of Americium.

Illustrative Examples

- Several bags of Low Level Waste were inadvertently consigned to a local waste disposal tip which was not authorised to take radioactive waste.
- Visiting road-working contractors bring onto site a piece of equipment subsequently found to be a density gauge containing a 3.7 GBq Cobalt 60 source.

TABLE 3 - NUCLEAR SECURITY INCIDENT CRITERIA

The criteria for reporting security related events are those required by the Nuclear Information Security Regulations (NISR) 2003 Regulations. They are outlined below for nuclear sites, premises, carriers and holders of sensitive information or enrichment equipment respectively. They do not apply to defence-related sites. These criteria, whilst considered to be explicit enough for the majority of occurrences, may benefit from further elaboration. Thus, in due course additional guidance will be provided by ONR.

| ONR Category | Description | Timing |
|--------------|--|--------|
| SC10a | Any unauthorised incursion on to the premises or any attempted or suspected such incursion. | 24 Hrs |
| SC10b | Any incident occurring on the premises involving an explosive or incendiary device or suspected such device, or a firearm or replica firearm. | 24 Hrs |
| SC 10c | Any damage to any building or equipment on the premises which might affect the security of the premises or any material or equipment mentioned in regulation 4(2). | 24 Hrs |
| SC10d | Any malicious damage to any building or equipment on the premises, other than any trivial damage that does not affect the security of the premises or any material or equipment mentioned in regulation 4(2). | 24 Hrs |
| SC10e | Any theft or attempted theft, or any loss or suspected loss, or any unauthorised movement:- of any nuclear material used or stored on the premises or in transit to or from them, or in the case of premises which are or form part of a nuclear site, of any other radioactive material used or stored on them. | 24 Hrs |
| SC10f | Any theft or attempted theft, or any loss or unauthorised disclosure, of sensitive nuclear information kept on the premises, or any suspected such theft, loss or disclosure. | 24 Hrs |
| SC10g | Any unauthorised access to any sensitive nuclear information kept on the premises, or any attempt to gain such access. | 24 Hrs |
| SC10h | Any threat to do anything which would fall within any of the above criteria 10 a-g. | 24 Hrs |
| SC10i | Any failure to comply with any of the standards, procedures and arrangements described in the approved security plan for the premises or in any approved temporary security plan to which for the time being they are subject. | 24 Hrs |
| SC10j | Any other event or matter which might affect the security of the premises or the material, equipment or information mentioned in regulation 4(2). | 24 Hrs |
| SC18 | An approved carrier must report to the Secretary of State any event or matter of a kind specified in the NISR 2003. | 24 Hrs |
| SC22a | Any theft or attempted theft, or any loss or unauthorised disclosure, of sensitive nuclear information or any suspected such theft, loss or disclosure. | 24 Hrs |

| | | |
|--|---|-----------|
| SC22b | Any unauthorised access to sensitive nuclear information or any attempt to gain such access. | 24 Hrs |
| SC22c | Any other event or matter which might affect the security of any sensitive nuclear information. | 24 Hrs |
| EVENTS MAY ADDITIONALLY* BE CATEGORISED BY THE FOLLOWING | | |
| AN01 | Events likely to attract, or that have attracted, significant national media or public attention. | Immediate |

* This code can be combined with one other code from this table.

SC10a - Any unauthorised incursion on to the premises or any attempted or suspected such incursion.

Origin of Criterion

Nuclear Industries Security Regulations 2003, Regulation 10 (5).

Discussion

This criterion is required under Regulation 10 (5) of the Nuclear Industries Security Regulations 2003. It ensures that reports of events and matters defined within the Regulations are made by the responsible person to ONR (CNS).

It concerns any unauthorised attempted or suspected incursion onto nuclear premises, or onto areas of nuclear premises with additional access control arrangements.

Illustrative Examples

- An attempt to deliberately access the site by attempting to cut through the site perimeter fence.
- A deliberate attempt to access a High Security Area by a member of staff who does not hold the required security clearance,
- An accidental incursion into a High Security Area by a member of staff who does not hold the required site, resultant from a failing in access control arrangements.

SC10b - Any incident occurring on the premises involving an explosive or incendiary device or suspected such device, or a firearm or replica firearm.

Origin of Criterion

Nuclear Industries Security Regulations 2003, Regulation 10 (5).

Discussion

This criterion is required under Regulation 10 (5) of the Nuclear Industries Security Regulations 2003. It ensures that reports of events and matters defined within the Regulations are made by the responsible person to ONR (CNS).

Civil Nuclear Constabulary firearms are authorised on nuclear premises; this criterion concerns incidents involving both authorised firearms and unauthorised firearms, in addition to actual or suspected explosive or incendiary devices.

Illustrative Examples

- A member of staff bringing an unauthorised firearm, or replica firearm, onto a nuclear premise.
- The loss of authorised firearms or ammunition on site, i.e. Civil Nuclear Constabulary firearms or, the negligent discharge of a weapon.
- The discovery of a suspect package adjacent to the perimeter.

SC10c - Any damage to any building or equipment on the premises which might affect the security of the premises or any material or equipment mentioned in regulation 4 (2).

Origin of Criterion

Nuclear Industries Security Regulations 2003, Regulation 10 (5).

Discussion

This criterion is required under Regulation 10 (5) of the Nuclear Industries Security Regulations 2003. It ensures that reports of events and matters defined within the Regulations are made by the responsible person to ONR (CNS).

It concerns any damage to buildings or equipment that might affect the security arrangements detailed in the approved security plan for a nuclear premise.

Illustrative Examples

- Storm damage to external perimeter fencing.
- Water ingress and subsequent damage to security systems and/or their back-up power supplies.
- The loss of communication systems used during a security response to an incident.
- Accidental damage to an intruder detection system by a contractor working on nearby plant.

SC10d - Any malicious damage to any building or equipment on the premises, other than any trivial damage that does not affect the security of the premises or any material or equipment mentioned in regulation 4(2).

Origin of Criterion

Nuclear Industries Security Regulations 2003, Regulation 10 (5).

Discussion

This criterion is required under Regulation 10 (5) of the Nuclear Industries Security Regulations 2003. It ensures that reports of events and matters defined within the Regulations are made by the responsible person to ONR (CNS).

It concerns any malicious damage to buildings or equipment that might affect the security arrangements detailed in the approved security plan for a nuclear premise.

Illustrative Examples

- Cutting of a security padlock and chain from a security fence.
- A member of staff purposefully damaging an access control reader in order to bypass the system.

SC10e - Any theft or attempted theft, or any loss or suspected loss, or any unauthorised movement:-
of any nuclear material used or stored on the premises or in transit to or from them, or in the case of premises which are or form part of a nuclear site, of any other radioactive material used or stored on them.

Origin of Criterion

Nuclear Industries Security Regulations 2003, Regulation 10 (5).

Discussion

This criterion is required under Regulation 10 (5) of the Nuclear Industries Security Regulations 2003. It ensures that reports of events and matters defined within the Regulations are made by the responsible person to ONR (CNS).

It concerns any nuclear material or other radioactive material that cannot be accounted for on a nuclear premise.

Illustrative Examples

- The theft of a nuclear fuel rod from a nuclear premise by a member of staff.
- The temporary loss of a radioactive source from a source store.

SC10f - Any theft or attempted theft, or any loss or unauthorised disclosure, of sensitive nuclear information kept on the premises, or any suspected such theft, loss or disclosure.

Origin of Criterion

Nuclear Industries Security Regulations 2003, Regulation 10 (5).

Discussion

This criterion is required under Regulation 10 (5) of the Nuclear Industries Security Regulations 2003. It ensures that reports of events and matters defined within the Regulations are made by the responsible person to ONR (CNS).

It concerns the compromise of security of Sensitive Nuclear Information on nuclear premises. Sensitive Nuclear Information is defined in the Regulations and in the Classification Policy for the Nuclear Industry.

Illustrative Examples

- A member of staff inadvertently sends an email containing Sensitive Nuclear Information over the internet by unencrypted, unauthorised means.

- The unauthorised removal from site of a document containing Sensitive Nuclear Information by a member of staff or contractor.

SC10g - Any unauthorised access to any sensitive nuclear information kept on the premises, or any attempt to gain such access.

Origin of Criterion

Nuclear Industries Security Regulations 2003, Regulation 10 (5).

Discussion

This criterion is required under Regulation 10 (5) of the Nuclear Industries Security Regulations 2003. It ensures that reports of events and matters defined within the Regulations are made by the responsible person to ONR (CNS).

It concerns the compromise of security of Sensitive Nuclear Information, as defined in the Regulations and in the Classification Policy for the Nuclear Industry.

Illustrative Examples

- A visitor to site, who does not hold adequate security clearance, attempts to gain access to Sensitive Nuclear Information.
- The installation of unauthorised software on an IT system.

SC10h - Any threat to do anything which would fall within any of the above criteria 10 a-g.

Origin of Criterion

Nuclear Industries Security Regulations 2003, Regulation 10 (5).

Discussion

This criterion is required under Regulation 10 (5) of the Nuclear Industries Security Regulations 2003. It ensures that reports of events and matters defined within the Regulations are made by the responsible person to ONR (CNS).

It concerns both direct and indirect threat to conduct any of the incidents or events described in criteria SC10 a-g.

Illustrative Examples

- Suspicious behaviour by a member of the public near to site, such as potential reconnaissance or asking for information about the site and/or its security arrangements.
- A direct telephone threat in relation to the security of a nuclear premise.

SC10i - Any failure to comply with any of the standards, procedures and arrangements

described in the approved security plan for the premises or in any approved temporary security plan to which for the time being they are subject.

Origin of Criterion

Nuclear Industries Security Regulations 2003, Regulation 10 (5).

Discussion

This criterion is required under Regulation 10 (5) of the Nuclear Industries Security Regulations 2003. It ensures that reports of events and matters defined within the Regulations are made by the responsible person to ONR (CNS).

The Regulations require that dutyholders must have an approved security plan and comply with the standards, procedures and arrangements within. Dutyholders may deviate from this approved plan by obtaining an approved temporary security plan. This criterion concerns a contravention or deviation from any approved security plan for a nuclear premise.

Illustrative Examples

- A shortfall in security guard force or Civil Nuclear Constabulary compliment as described in the approved security plan.
- Unauthorised use of a camera on site.

SC10j - Any other event or matter which might affect the security of the premises or the material, equipment or information mentioned in regulation 4(2).

Origin of Criterion

Nuclear Industries Security Regulations 2003, Regulation 10 (5).

Discussion

This criterion is required under Regulation 10 (5) of the Nuclear Industries Security Regulations 2003. It ensures that reports of events and matters defined within the Regulations are made by the responsible person to ONR (CNS).

This criterion aims to cover all other incidents or events that are a not specifically covered in the other reporting criteria but may affect security.

Illustrative Examples

- Altercation between civilian security guards whilst on duty.
- Non-maliciously induced failure of security equipment
- UAV flown over the site in contravention of the CAA prohibited no fly area

SC18 - An approved carrier must report to the Secretary of State any event or matter of a kind specified in the NISR 2003.

Origin of Criterion

Nuclear Industries Security Regulations 2003, Regulation 18 (5).

Discussion

This criterion is required under Regulation 18 (5) of the Nuclear Industries Security Regulations 2003. It ensures that reports of events and matters defined within the Regulations are made by approved carriers to ONR (CNS).

It concerns incidents or events related to Cat I-III nuclear material in transit or temporary storage, and the security of such material.

Illustrative Examples

- Actual, or attempted, incursion on to premises where nuclear material is being temporarily stored.
- A carrier failing to comply with the standards, procedures and arrangements in its approved transport security statement, such as a driver having the incorrect security clearance commensurate with the categorisation of nuclear material being transported.
- The loss, theft or compromise of a transport security plan.

SC22a - Any theft or attempted theft, or any loss or unauthorised disclosure, of sensitive nuclear information or any suspected such theft, loss or disclosure.

Origin of Criterion

Nuclear Industries Security Regulations 2003, Regulation 22 (10).

Discussion

Regulation 22 (10) of the Nuclear Industries Security Regulations 2003 applies to dutyholder locations which hold sensitive nuclear information but are not a nuclear site or approved carrier. Sensitive nuclear information is defined within the Regulations and the classification policy and is information that needs to be protected in the interests of national security.

Illustrative Examples

- A contractor emails Sensitive Nuclear Information to a licensee over the internet via unencrypted means.
- Theft or attempted theft of a SECRET document from a dutyholder's premise.

SC22b - Any unauthorised access to sensitive nuclear information or any attempt to gain such access.

Origin of Criterion

Nuclear Industries Security Regulations 2003, Regulation 22 (10).

Discussion

This criterion is required under Regulation 22 (10) of the Nuclear Industries Security Regulations 2003. It ensures that reports of events and matters defined within the

Regulations are made to ONR (CNS) by persons who have possession or control of Sensitive Nuclear Information, or uranium enrichment software or equipment.

Illustrative Examples

- A worker with expired security clearance continues to gain access to Sensitive Nuclear Information.
- A visitor to a dutyholder's offices attempts to gain access to security container holding Sensitive Nuclear Information.

SC22c - Any other event or matter which might affect the security of any sensitive nuclear information.

Origin of Criterion

Nuclear Industries Security Regulations 2003, Regulation 22 (10).

Discussion

This criterion is required under Regulation 22 (10) of the Nuclear Industries Security Regulations 2003. It ensures that reports of events and matters defined within the Regulations are made to ONR (CNS) by persons who have possession or control of Sensitive Nuclear Information, or uranium enrichment software or equipment.

This relates to any events or matters not covered under SC22b and SC22c.

Illustrative Examples

- A document containing Sensitive Nuclear Information is left out on a workers desk overnight.
- Sensitive Nuclear Information saved to a network which is not accredited to hold that level of information.

TABLE 4 - NUCLEAR SAFEGUARDS INCIDENT CRITERIA

The criteria for reporting safeguards related incidents are those required by EURATOM and IAEA plus those developed by the ONR Safeguards function. Categories SG02 to SG04, inclusive, require dual notification to ONR and the Euratom Safeguards Inspectorate (as required by Article 14 of Euratom Reg. 302/2005). Events falling under category SG01 should also be reported to the Safeguards Inspectorates of either the IAEA or Euratom, as appropriate, without delay, as should events under categories SG05, SG06 and SG08.

| ONR Category | Description | Timing |
|--|---|-----------|
| SG01 | An event affecting the health and safety of a European Commission or IAEA safeguards inspector | Day |
| SG02 | Unexpected loss or gain of nuclear material | Day |
| SG03 | Information that nuclear material shipped by or to the licensee has been or may have been lost or considerably delayed during transfer | Day |
| SG04 | Unexpected change in plant/material containment to the extent that nuclear material could have been transferred without being subject to agreed safeguards verification | Day |
| SG05 | Other changes in plant design from that specified in Basic Technical Characteristics (BTC) declarations without advance notification to the safeguards authorities and that are assessed as sufficiently significant to risk compromising compliance with safeguards obligations | Week |
| SG06 | Statutory accountancy reports not issued to timescales required under Euratom Regulation 302/2005 | Day |
| SG07 | Failure to provide or shortcomings in the required inspection documentation, access for material verification or other problems of safeguards inspection implementation that are assessed as sufficiently significant to risk compromising compliance with safeguards obligations | Day |
| SG08 | Changes affecting the annual Programme of Activities declared to the Safeguards Authorities that are assessed as having significant implications for compliance with safeguards obligations | Week |
| SG09 | Other nuclear material and /or safeguards-related occurrences not readily assigned above that are assessed as sufficiently significant to risk compromising compliance with safeguards obligations | Week |
| EVENTS MAY ADDITIONALLY* BE CATEGORISED BY THE FOLLOWING | | |
| AN01 | Events likely to attract, or that have attracted, significant national media or public attention. | Immediate |

* This code can be combined with one other code from this table.

Notes on Interpreting the Nuclear Safeguards Incident Reporting Criteria

SG01 - An event affecting the health and safety of a European Commission or IAEA safeguards inspector. (Day)

Origin of Criterion

Requirement of the Euratom Treaty (Article 195), facility-specific Particular Safeguards Provisions (PSPs, Code 5.6) and the UK/IAEA/Euratom Safeguards Agreement (Article 44)

Discussion

Self explanatory - to ensure that ONR Safeguards and the Euratom and/or IAEA safeguards inspectorates are informed without delay of instances where the health or safety of safeguards inspectors may have been compromised.

Illustrative examples

- A safeguards inspector is contaminated, receives abnormally high radiation dose or is injured in the course of their inspection activities;
- A safeguards inspector breaches site safety-related requirements.

SG02 - Unexpected loss or gain of nuclear material. (Day)

Origin of Criterion

Euratom Regulation 302/2005 (Article 15).

Discussion

Self explanatory - to ensure that ONR Safeguards and the Euratom and/or IAEA safeguards inspectorates are informed without delay of unexpected changes in the inventory of nuclear material subject to safeguards.

Events matching this criterion may also match Radiological Protection criteria RS13 or RS14.

Illustrative examples

- Failure to locate a discrete 'item' containing nuclear material as it is reported in the licensee's nuclear material accountancy system;
- Shipper Receiver Difference or Inventory Difference figures that exceed agreed action levels;
- 'Finds' of nuclear material other than as anticipated in the course of post operational clean out and/or decommissioning.

SG03 - Information that nuclear material shipped by or to the licensee has been or may have been lost or considerably delayed during transfer (Day)

Origin of Criterion

Euratom Regulation 302/2005 (Article 22) and the UK/IAEA/Euratom Safeguards Agreement (Article 91).

Discussion

Self explanatory - to ensure that ONR Safeguards and the Euratom and/or IAEA safeguards inspectorates are informed without delay of loss or unexpected delay in the shipment of nuclear material to or from the facility. Events matching this criterion are likely also to match the Radiological Protection criterion RS13 and the Transport criterion TS02.

Illustrative examples

- Checks on receipt of a shipment show damage to material containers or their sealing and/or otherwise do not confirm shipper's data (e.g. item count, weight etc.);
- Nuclear material which has been subject to pre-shipment safeguards verification are delayed in transit.

SG04 - Unexpected change in plant/material containment to the extent that nuclear material could have been transferred without being subject to agreed safeguards verification. (Day)

Origin of Criterion

Euratom Regulation 302/2005 (Article 15) and the UK/IAEA/Euratom Safeguards Agreement (Article 68)

Discussion

Self explanatory - to ensure that ONR Safeguards and the Euratom and/or IAEA safeguards inspectorates are informed without delay of compromise to material containment which may affect its safeguards verification/coverage.

Illustrative example(s)

- Leakage of nuclear material;
- Breakage of safeguards seals without advance notification;
- Known failures relating to other key safeguards equipment (e.g. obstruction of surveillance cameras or the failure of lighting associated with surveillance).

SG05 - Other changes in plant design from that specified in Basic Technical Characteristics (BTC) declarations without advance notification to the safeguards authorities and that are assessed as sufficiently significant to risk compromising compliance with safeguards obligations. (Week)

Origin of Criterion

Euratom Regulation 302/2005 (Article 6) and facility-specific Particular Safeguards Provisions (PSPs).

Discussion

The safeguards authorities should be provided with information in advance of changes to the installation design or processes that may affect safeguards verification arrangements. This reporting criterion is to ensure that ONR Safeguards and the Euratom safeguards inspectorate are notified of situations where the required advance information has not been provided and where that failure is assessed as sufficiently significant to risk compromising compliance with safeguards obligations.

Illustrative example

- Plant modifications which include new processes for handling material within an installation, or new routes for shipping material to or from the installation

SG06 - Statutory accountancy reports not issued to timescales required under Euratom Regulation 302/2005. (Day)

Origin of Criterion

Euratom Regulation 302/2005 (Article 12, 13, 20, and 21).

Discussion

Self explanatory - to ensure that ONR Safeguards and the Euratom safeguards inspectorate are given explicit information about delays or prospective delays in the provision of statutory safeguards reports.

Illustrative examples

- Failure to provide safeguards reports and advance notifications to timescales required by Euratom Regulation 302/2005.
- Failure to calculate Inventory Difference and /or Action Levels within 30 days of an inventory.

SG07 - Failure to provide or shortcomings in the required inspection documentation, access for material verification or other problems of safeguards inspection organisation that are assessed as sufficiently significant to risk compromising compliance with safeguards obligations. (Day)

Origin of Criterion

Euratom Treaty (Articles 81 and 82), facility-specific PSPs and the UK/IAEA/Euratom Safeguards Agreement (Articles 70-89).

Discussion

Self explanatory - to ensure that ONR Safeguards is alerted, without delay, to issues arising during safeguards inspections or otherwise that are assessed as sufficiently significant to risk compromising compliance with safeguards obligations and may therefore be the subject of follow-up and possible escalation, including direct to ONR Safeguards and/or the UK Government, by the Euratom and/or IAEA safeguards inspectorates.

Illustrative examples

- Significant errors in the List of Inventory Items (LII) issued to the safeguards inspectorates for annual Physical Inventory Verification (PIV) (e.g. items included on the LII that cannot be located during the PIV, items located during the PIV which are not included in the LII and/or verification that does not confirm item identity or contents as declared in the LII);
- Failure to locate or otherwise make material available for verification, or delays in making material available that affect the scope of the inspection concerned;
- Failures in the provision of other information (e.g. operating records or accountancy reports) to substantiate safeguards declarations;

- Inspection findings at odds with operator/facility safeguards declarations;
- Other issues affecting the conduct of a safeguards inspection (e.g. possible security-related issues).

SG08 - Changes affecting the annual Programme of Activities declared to the Safeguards Authorities that are assessed as having significant implications for compliance with safeguards obligations. (Week)

Origin of Criterion

Euratom Regulation 302/2005 (Article 5) and facility-specific PSPs.

Discussion

Facility operators must provide the safeguards authorities of an annual programme of activities and operations that are relevant to safeguards implementation (e.g. expected shipments and receipts of material, planned plant shutdown/outages). This criterion is to ensure that ONR Safeguards and the Euratom and/or IAEA safeguards inspectorates are provided with timely information on changes to such annual programmes that have significant implications for safeguards implementation.

Illustrative examples

- Changes to dates for annual Physical Inventory Taking (PIT) exercises
- Changes to schedules shipment/receipt of nuclear material;
- Other changes which may affect safeguards implementation/access (e.g. dates for site emergency exercises).

SG09 - Other nuclear material and /or safeguards-related occurrences not readily assigned above that are assessed as sufficiently significant to risk compromising compliance with safeguards obligations. (Week)

Origin of Criterion

Euratom Regulation 302/2005 (Articles 7- 9), the accompanying guidance (Commission Recommendation of 15 December 2005), facility-specific PSPs and also the UK/IAEA/Euratom Safeguards Agreement.

Discussion

To ensure ONR Safeguards is provided with timely information on nuclear material accountancy issues and potential inspection/verification shortcomings that risk compromising compliance with safeguards obligations (e.g. in terms of follow-up by the safeguards inspectorates) and which are not readily categorised according to criteria SG01-SG08.

Illustrative examples

- Unauthorised movement of nuclear material. This includes material shipped without authorisation of the receiver and/or other significant deficiencies in accountancy documentation, material shipped without an accountancy plan, movement not complying with its accountancy plan or working instructions;
- Other shortcomings in the documentation to substantiate nuclear material accountancy declarations.
- Failure or poor performance of systems for the measurement and/or analysis of nuclear material (e.g. information indicating a bias in system output).

- Forecast or actual Shipper Receiver Difference or Inventory Difference figures that exceed internal action levels (at the level of the MBA or its subsidiary accountancy areas);
- An indication that the security of safeguards information may have been compromised, whether by site operator and/or the inspectorates;
- Possible breach of other PSP conditions not covered above.

TABLE 5 – TRANSPORT SAFETY INCIDENT CRITERIA

The legal criteria for reporting transport safety related incidents are those required by the Carriage of Dangerous Goods Regulations and others as detailed below.

Under the United Nations classification scheme for dangerous goods, radioactive material is classified as Class 7 material. Hence in these reporting criteria, radioactive material is referred to as 'class 7 goods' which is consistent with the terminology used in UK regulations.

| ONR Category | Description | Timing |
|--------------|--|-----------|
| TS01 | A radiological emergency: a situation arising during the course of the carriage of a consignment of class 7 goods that requires urgent action in order to protect workers, members of the public or the population (either partially or as a whole) from exposure | Immediate |
| TS02 | Theft or loss of the class 7 goods in carriage | Immediate |
| TS03 | Emergency arrangements have been initiated in relation to class 7 goods even if, in the event, no intervention was made pursuant to those arrangements | Immediate |
| TS04 | An occurrence during loading, carriage or unloading of class 7 goods involving: <ul style="list-style-type: none"> a) Any release of radioactive material from the packages, or from the conveyance if being transported unpackaged b) Exposure leading to a breach of the limits set out in the regulations for protection of workers and members of the public against ionising radiation (Schedule II of IAEA Safety Series No. 115 – “International Basic Safety Standards for Protection Against Ionising Radiation and for Safety of Radiation Sources”) | Immediate |
| TS05 | An occurrence during loading, carriage or unloading of class 7 goods where there is reason to believe that there has been a significant degradation in any package safety function (containment, shielding, thermal protection or criticality) that may have rendered the package unsuitable for continued carriage without additional safety measures | Immediate |
| TS06 | An occurrence where class 7 goods have been transported with any non-compliance regarding radiation or contamination levels (see notes) | Day |
| TS07 | Where class 7 goods have not been transported in full compliance with any appropriate specification or regulation, except as otherwise covered by TS05 | Week |
| TS08 | A safety significant abnormal occurrence which has taken place during the loading, filling, carriage or unloading of class 7 goods, provided it did not lead to a transport in breach of relevant statutory provisions, package specification or handling instructions. | Month |
| TS09 | The discovery of radioactive material in a shipment believed to be non-radioactive | Month |

| EVENTS MAY ADITIONALLY* BE CATEGORISED BY THE FOLLOWING | | |
|---|--|-----------|
| AN01 | Events likely to attract, or that have attracted, significant national media or public attention . | Immediate |

* This code can be combined with one other code from this table.

Notes on Interpreting the Transport Incident Reporting Criteria

General

Any reference in this guidance to ADR (the European Agreement concerning the Carriage of Dangerous Goods by Road) also covers RID (the Regulations concerning the International Carriage of Dangerous Goods by Rail).

This guidance covers transport of radioactive material by all modes for which ONR acts on behalf of a Competent Authority (currently the transport of radioactive material by road, air and sea in UK; and rail in GB). The GB Competent Authority for the transport of radioactive material by road and rail is the Secretary of State for Energy and Climate Change; the UK Competent Authority for the transport of radioactive material by air is the Civil Aviation Authority (CAA); the UK Competent Authority for the transport of radioactive material by sea is the Secretary of State for Transport (via the Maritime and Coastguard Agency (MCA)); the Northern Ireland Competent Authority for the transport of radioactive material by road is the Department of Agriculture, Environment and Rural Affairs Northern Ireland. The regulations covering air; sea; and road in Northern Ireland differ in some respects from those covering road and rail in GB - in particular with regard to the requirements to notify certain incidents to the CAA/MCA/DoENI (as applicable) rather than to ONR.

As indicated under section 4.4, where an occurrence falls under more than one of these criteria, the criterion with the shortest timing and highest significance should be used. Ambiguity over which criterion to use should not hinder prompt reporting if immediate notification is required

Many events are only discovered following receipt of a package by the consignee, however, the Carriage of Dangerous Goods Regulations place legal responsibility for notifying events onto the consignor once he becomes aware of an event. Where the consignor and consignee are different entities the consignee should contact the consignor, however, consignees are encouraged not to delay immediate notification to ONR if the event category requires it.

Subject to agreement with ONR certain very minor events or classes of event could be excluded from these criteria provided they are included in periodic event summary reports. Such events would be reportable under TS07 or TS08 but their lack of safety significance does not merit the use of the INF-1 reporting route.

TS01 - A radiological emergency: a situation arising during the course of the carriage of a consignment of class 7 goods that requires urgent action in order to protect workers, members of the public or the population (either partially or as a whole) from exposure (Immediate)

Origin of Criterion

Regulation 24 and Sections 5(1) to 5(3) of Schedule 2 of the Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 (as amended 2011) (CDG).

Discussion

This criterion is developed from the definition of “notifiable event” in Section 5(7)(a)(i) of Schedule 2 of CDG

CDG requires “immediate” notification which is defined in Section 4.4.1, for the purposes of this guidance.

Illustrative Examples

- None provided

TS02 - Theft or loss of the class 7 goods in carriage (Immediate)

Origin of Criterion

Regulation 24 and Sections 5(1) to 5(3) of Schedule 2 of the Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 (as amended 2011) (CDG).

Discussion

This criterion is developed from the definition of “notifiable event” in Section 5(7)(a)(ii) of Schedule 2 of CDG

CDG requires “immediate” notification which is defined in Section 4.4.1 for the purposes of this guidance.

Illustrative Examples

- Van containing radioactive package is stolen even if the package was not the target of the theft.
- Customer does not receive package and neither consignor nor carrier is able to locate it.

TS03 - Emergency arrangements have been initiated in relation to class 7 goods even if, in the event, no intervention was made pursuant to those arrangements (Immediate)

Origin of Criteria

Regulation 24 and Section 5(4) of Schedule 2 of the Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 (as amended 2011) (CDG).

Discussion

The timescale for reporting is not specified in CDG but has been placed as immediate as the activation of an emergency response is indicative of a potentially serious problem developing. False alarms of a non-trivial nature may also be reportable.

Illustrative Examples

- The RADSAFE scheme is activated for any reason (except exercises) even if the response team is recalled before reaching the scene of the incident

TS04 - An occurrence during loading, carriage or unloading of class 7 goods involving:

- a) Any release of radioactive material from the packages, or from the conveyance if being transported unpackaged or
- b) Exposure leading to a breach of the limits set out in the regulations for protection of workers and members of the public against ionising radiation (Schedule II of IAEA Safety Series No. 115 – “International Basic Safety Standards for Protection Against Ionising Radiation and for Safety of Radiation Sources”)
(Immediate)

Origin of Criterion

Regulation 24 and Sections 5(1) to 5(3) of Schedule 2 of the Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 (as amended 2011) (CDG).

Discussion

This criterion is developed from the definition of “notifiable event” in Section 5(7)(a)(iii) of Schedule 2 of CDG as detailed in (a) and (b) of the loss of product criteria for Class 7 material in ADR 1.8.5.3

ADR 1.8.5.1 requires that occurrences meeting this criterion be reported using the model specified in ADR 1.8.5.4. If it is necessary to notify ONR-RMT under this criterion then the initial notification should be supplemented with a form corresponding to the model in ADR 1.8.5.4. and this should be noted on the INF-1 form. It shall also be noted on the INF-1 form whether the United Nations Economic Commission for Europe has been informed as required by ADR 1.8.5.2

Illustrative Examples

- A package is run over by a fork lift truck in an airport warehouse resulting in the release of some or all of its radioactive contents
- A van carrying low level waste drums is involved in an accident resulting in the lids of some of the drums coming off and material being released

TS05 - An occurrence during loading, carriage or unloading of class 7 goods where there is reason to believe that there has been a significant degradation in any package safety function (containment, shielding, thermal protection or criticality) that may have rendered the package unsuitable for continued carriage without additional safety measures (Immediate)

Origin of Criterion

Regulation 24 and Sections 5(1) to 5(3) of Schedule 2 of the Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 (as amended 2011) (CDG).

Discussion

This criterion is developed from the definition of “notifiable event” in Section 5(7)(a)(iii) of Schedule 2 of CDG as detailed in (c) of the loss of product criteria for Class 7 material in ADR 1.8.5.3. Although this criterion has the same origin as TS04 it is being treated separately as it covers loss of defence in depth and requires an element of judgement in its use which distinguishes it from other criteria.

Degradation of safety features could involve damaged/missing/incorrect components, inadequate fastenings or missing/incorrect labelling/documentation and shall apply to a package which has been incorrectly prepared for transport as well as packages whose safety functions have become degraded during transport.

“Significant” degradation of safety features should be interpreted to mean that the package no longer meets the requirements of the regulations. There may not be sufficient time adequately to assess the safety significance of a package irregularity (especially regarding potential performance in an accident) so consignors/carriers are advised to err on the side of caution to ensure compliance with the reporting requirements of CDG.

A significant degradation with regard to labelling/documentation would be where the information provided by that label/document is incorrect or unclear to the extent it becomes ineffective. Spelling errors, provided the meaning of the label/document remains clear, should not be included.

ADR 1.8.5.1 requires that occurrences meeting this criterion be reported using the model specified in ADR 1.8.5.4. If it is necessary to notify ONR-RMT under this criterion then the initial notification should be supplemented with a form corresponding to the model in ADR 1.8.5.4. and this should be noted on the INF-1 form. It shall also be noted on the INF-1 form whether the United Nations Economic Commission for Europe has been informed as required by ADR 1.8.5.2

TS05 includes material packaged in an incorrect package type for the nature or quantity or radioactive material being transported or material transported unpackaged when an appropriate package should have been used.

Illustrative Examples

- Non special form radioactive material in quantities exceeding an A₂ transported in a Type A package (rather than a competent authority approved “Type B” package)
- Low Specific Activity LSA-II material transported in an IP-1 package
- Cobalt-60 source package transported with missing shield-plug
- Enriched uranium transported with incorrect Criticality Safety Index label
- Package severely damaged in an accident
- Package containing fissile material transported with higher fissile content than allowed in certificate
- Shipment of packages whose design requires Competent Authority approval but where the required certification is not available or has become invalid

TS06 - An occurrence where class 7 goods have been transported with any non-compliance regarding radiation or contamination levels (see notes) (Day)

Origin of Criterion

ADR 1.7.6; RID 1.7.6; IMDG Code 1.5.6; ICAO Technical Instructions 1;6.6(d)

Discussion

The relevant limits regarding radiation or contamination levels will be breached where:

- Non fixed contamination levels exceed 4 Bq/cm² (β/γ) or 0.4 Bq/cm² (α)
- The surface dose-rate on an excepted package exceeds 5 μSv/h

- The surface dose-rate on a package not being shipped under exclusive use exceeds 2 mSv/h
- The surface dose-rate on a package being shipped under exclusive use exceeds 10 mSv/h
- The dose-rate from fixed contamination exceeds the limits specified in ADR 7.5.11 CV33 (5.4)
- The Transport Index of a package, total Transport Index on a conveyance, radiation dose-rate around a conveyance or segregation of packages from persons exceeds the appropriate limits specified in ADR 7.5.11 CV33.
- Low Specific Activity (LSA) materials or Surface Contaminated Objects (SCO) are transported with contamination or dose-rates exceeding the limits in ADR 4.1.9.2.1 and ADR 4.1.9.2.3

ADR 1.7.6.1 requires notification “as soon as practicable” which for the purposes of this guidance is interpreted to mean within a day.

Operational experience indicates that most notifications under this criterion will concern the first of the above bullet points. In particular this will be where an irradiated nuclear fuel flask has been measured on arrival to have area(s) of non-fixed contamination exceeding 4 Bq/cm² (or 0.4 Bq/cm² if α). Flask handling operations mean that these items can be transported with measurable surface contamination so its presence is not necessarily indicative of a fault. Therefore for this special case and where the limit has been exceeded by a factor of less than 10 a reporting period of one week would be acceptable.

This criterion is envisaged to cover relatively minor breaches of the limits. The presence of potentially hazardous high dose-rates are more appropriately covered by other criteria which require immediate notification. If a radiological emergency is developing or emergency arrangements have been activated then criterion TS01 or TS03 will apply. If the high dose-rates are due to missing or damaged shielding components then TS05 might apply.

Illustrative Example

- An excepted package is received by a consignee, where routine monitoring reveals that it had been transported with a surface dose-rate of 8 μ Sv/h or above.

TS07 – Where class 7 goods have not been transported in full compliance with any appropriate specification or regulation, except as otherwise covered by TS05 (Week)

Origin of Criterion

Non-specific

Discussion

This criterion applies where a package was (or is being) transported not in full compliance with the requirements of the regulations or certificate of approval. This includes packages which do not conform to the appropriate drawings, operating / handling / maintenance instructions (this list is not exhaustive) or otherwise (e.g. due to incorrect preparation or an event during transport), but where the consignor/carrier does not consider that any degradation of package safety functions is sufficiently severe to be covered by TS05. The consignor/carrier should satisfy themselves that the non-conformance does not fall under TS05.

Discussions with the relevant ONR Inspector should be undertaken to confirm if an event follow up may be more appropriate via routine inspection activity, if this is agreed there is no requirement to submit an INF1

Illustrative Examples

- Irradiated nuclear fuel flask transported with one or two loose lid bolts
- Package carries only one label out of the two required
- Inadequate tie-downs
- Dose-rates higher than expected but not covered by TS06
- Maintenance period exceeded
- Vehicle fails to display placards

TS08 - A safety-significant abnormal occurrence during the loading, filling, carriage or unloading of class 7 goods, provided it did not lead to a transport in breach of relevant statutory provisions, package specification or handling instructions. (Month)

Origin of Criterion

Non-specific

Discussion

This is to ensure that ONR is made aware of occurrences which, although not resulting in a non-compliant shipment, could provide indications of the potential for unsafe situations to develop. Examples might be dropping a heavy component onto a package or the persistent failure of pre-dispatch tests carried out on a package or series of packages. Significant quality related irregularities (e.g. the discovery of incorrect package components) should also be reported under this criterion.

Discussions with the relevant ONR Inspector should be undertaken to confirm if an event follow up may be more appropriate via routine inspection activity, if this is agreed there is no requirement to submit an INF1

Illustrative Example

- Series of incidences where incorrect lid bolts were held in store for use in packages but not actually used

TS09 - The discovery of radioactive material in shipment believed to be non-radioactive (Month)

Origin of Criterion

Preventative measure to avoid non-compliance with regulations following the discovery.

Discussion

This criterion is to cover events where radioactive material is discovered in shipments where none was suspected. Typically these detections take place at ports/airports or scrap yards. It is unlikely that the detected material was being transported in compliance with the transport regulations. Depending on the size of the source there may have been significant radiological implications, however, no blame can be attached to the people or organisations involved.

If there is reason to suspect that the presence of radioactive material was known or reasonably foreseeable or movements subsequent to detection were not carried out in full compliance with the regulations then other criteria will apply.

Illustrative Examples

- Monitor at a scrap yard detects a disused radioactive source in a load of scrap metal
- Portal monitor detects Co60 from a melted source in a shipment of steel goods

AN01 - Occurrences likely to attract, or that have attracted, significant national media or public attention and not covered by any other criteria. - Immediate

Origin of criterion

Non-specific

Discussion

Due to regulatory requirements for package labels and vehicle placards to be displayed, the presence of radioactive material in transport is often visible to the general public. This criterion is to ensure that the ONR is made aware of an occurrence which, although not presenting any hazard due to the presence of radioactive material, could nevertheless give rise to public concern.

Transport examples of the use of AN01 could include road/rail accidents either involving another vehicle or where the conveyance is immobilised for a several hours or more. Breakdowns or flat tyres need not be included unless there is evidence of national media interest. Attendance of emergency services vehicles at the scene of any incident should only be reported as AN01 if blue flashing lights and sirens were used (in attending the incident).

The required timing is consistent with Table 1 of this document, but it is desirable that ONR be made aware of any media interest in a timely manner.

Illustrative Examples

- Flask train in collision with vehicle on level crossing
- Flask train with overheating axle activates a smoke alarm leading to the evacuation of a railway station.
- City-centre accident involving a van transporting radiopharmaceuticals leads to traffic disruption for two hours.

APPENDIX 2 – MINISTERIAL REPORTING CRITERIA (MRC)*

| MRC/HSE/ONR Publication Criteria | Description of Criteria |
|-------------------------------------|--|
| a | <p>Dangerous occurrences reportable under the Nuclear Installations (Dangerous Occurrences) Regulations 1965. Summary of occurrences from Regulation No 3 are as follows:-</p> <p>3(a) any occurrence on a licensed site involving the emission of ionising radiations or the release of radioactive or toxic substances, causing or likely to cause death, or serious injury, on or off the site.</p> <p>3(b) any occurrences during transport causing or likely to cause death or serious injury or the breach of containment of a transport package.</p> <p>3(c) any explosion or fire on a licensed site affecting or likely to affect the safe working or safe condition of the nuclear installation.</p> <p>3(d) any uncontrolled criticality excursion.</p> |
| b | Confirmed exposure to radiation of individuals which exceed or are expected to exceed, the dose limits specified in Schedule 4 to the Ionising Radiation Regulations (IRRs) 1999. |
| c | Examination, inspection, maintenance, test or operation of any part of the plant revealing that the safe operation or condition of the plant may be significantly affected. |
| d | Abnormal occurrences leading to a confirmed release to atmosphere or spillage of a radioactive substance which exceeds or is expected to exceed, the limits set out in Column 4 of Schedule 8 to the IRRs 1999, except where the release is in a manner specified in an Authorisation under the Environmental Permitting Regulation 2010 or Radioactive Substances Act 1993. |
| e | Abnormal occurrences leading to a release or suspected release or spread of radioactivity, on or off site, which requires special action or special investigation by the Operator. |

*The above criteria relate to nuclear safety and radiological incidents only.

Work is ongoing to develop ministerial reporting criteria for Transport, Safeguards and Security incidents.

APPENDIX 3 – NOTIFICATION/REPORTING INCIDENTS OR EVENTS TO ONR

A1. Except for nuclear security related events and certain transport events, the preferred method of initial notification should be by completion of an ONR [Incident Notification Form - INF 1](#) (See Appendix 4) which is then sent by email to a relevant ONR email account (see address details below).

A2. Depending upon the time of an incident and where “Immediate” notifications are necessary, email will not necessarily be the most appropriate means of prompt communication, and a telephone call should be made directly to a relevant ONR inspector; unless an out of hours call is made to the HSE’s Duty Officer. A verbal report of the details may then be made to the ONR inspector and either followed up with an email or, by agreement the ONR inspector may complete an INF1 form instead of the site or operator doing it.

A3. For any notifications made outside normal office hours (08.30 – 17.00 Hrs), at weekends and on public holidays when HSE/ONR offices are closed, then the notification should be made by telephone to the HSE’s Duty Officer (Tel 0151 922 9235). An ONR inspector will then be contacted and will make a return call to take relevant details, which should be recorded on an INF1 form by agreement with the ONR inspector.

A4. For initial notifications that fall within a category of timing within a “Day”, then an email of an INF 1 form should be sufficient. However there may be occasions, for example during extended public holiday periods or weekends when a licensee wishes to notify ONR out of normal office hours, and this should be via the HSE’s Duty Officer arrangements (see details above).

A5. Security related incidents require notification under NISR 2003 within 24 hours. Such notifications should be made by telephone to the relevant ONR Civil Nuclear Security inspector. ONR CNS arrangements also provide for an out-of-hours Duty Officer (see contact details below).

A6. Some transport related incidents require notification under ADR immediately. Such notifications should be made by telephone to the relevant ONR Transport inspector. ONR Transport arrangements also provide for an out-of-hours Duty Officer (see contact details below).

A7. Telephone reports for Transport or CNS can be followed by an INF1 form if required by local arrangements, agreed with the relevant ONR Inspector. Follow-on reports may be transmitted by an appropriate carrier and not by email.

A8. For events reportable under specific regulations or requirements, alternative means of reporting may be required and duty-holders should use the particular reporting format as necessary e.g. RIDDOR.

A9. Where appropriate it may be necessary to provide additional information to supplement that provided in the initial notification e.g. a final INES rating. In such cases an update to the original INF 1 form may be used to convey this information. This should be made clear on the form to prevent duplicate recording of incidents.

A10. If ONR has created the INF1 notification, a Licensee or dutyholder may request a copy of the INF1 for their own records. This is recommended where there may be follow-up or corrections to information supplied verbally, for instance to an INES rating.

A11. The provision of 60 day follow-up reports should be preferably by email to the relevant account (see details below) and should include reference to the original incident number.

ONR CONTACT DETAILS FOR INCIDENT NOTIFICATION/REPORTING

All Nuclear Licensed Sites

| Email Account | Telephone | Out of Hours |
|--------------------------|---------------|---------------|
| ONR.incidents@onr.gov.uk | 0203 028 0064 | 0151 922 9235 |

**Transport Safety
Sites and carriers of radioactive material subject to CDGR2009**

| Email Account | Telephone | Out Of Hours |
|--------------------------|---------------|---------------|
| ONR.incidents@onr.gov.uk | 0203 028 0064 | 0151 922 9235 |

All initial notifications should be made to the ONR Radioactive Materials Transport Team by telephone above, until further notice. The relevant details will be recorded on an INF1 form (see Appendix 4).

**Civil Nuclear Security
All Nuclear Sites and other dutyholders subject to NISR2003**

| Email Account | Telephone | Out of Hours |
|----------------------------------|----------------------------|---------------|
| ONR.CNS.Event.Reports@onr.gov.uk | Relevant ONR CNS Inspector | 0203 028 0312 |

All initial notifications are to be made by telephone. If an ONR CNS site inspector is unavailable or the notification is out of normal office hours, the Civil Nuclear Constabulary Communications Centre Duty Sergeant should be called on the above number. The ONR CNS Duty Officer will then be contacted and will call the reporting organisation back to take the relevant details.

The above telephone oral report should be confirmed in writing within 48 hours, for this purpose the report should be sent using an INF1 form (see Appendix 4).

Notifications can be sent by post to;

ONR Incidents
The Office of Nuclear Regulation
Redgrave Court
Merton Road
Bootle
Merseyside
L20 7HS

APPENDIX 4 – ONR INCIDENT NOTIFICATION FORM (INF 1)

The INF1 form is designed to be completed and submitted on-line using MS-Word. It contains software, for which the user should set macro security settings to Medium. Copies of the INF1 form may be downloaded from the ONR website;

<http://www.onr.org.uk/operational/inspection/onr-incident-notification-form-inf1.doc>