



ONR GUIDE			
Notifying and Reporting Incidents and Events to ONR			
Document Type:	ONR Guide		
Unique Document ID and Revision No:	ONR-OPEX-GD-001 Revision 7		
Date Issued:	January 2021	Review Date:	December 2024
Approved by:	C Tait	Regulatory Intelligence & Oversight Manager	
Record Reference:	2020/0323080		
Revision commentary:	Nuclear Safeguards Criteria (Appendix 1 Table 4) updated to reflect Nuclear Safeguards (EU Exit) Regulations 2019 and bilateral Voluntary Offer Safeguards Agreement (VOA).		

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Published 01/21

1. ABBREVIATIONS

CNSS	Civil Nuclear Security and Safeguards [an ONR Division]
EMIT	Examination, maintenance, inspection and testing
FUR	Follow-Up Report
IAEA	International Atomic Energy Agency
INES	The International Nuclear and Radiological Event Scale (published by IAEA)
LC	Licence Condition
MRC	Ministerial Reporting Criteria
MRCT	Ministerial Reporting Criteria for Transport events
NISR	Nuclear Industries Security Regulations 2003
OPEX	Operational Experience
REPIR	Radiation Emergency Preparation, Preparedness and Information Regulations 2019
RIDDOR	Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013

2. INTRODUCTION

- 2.1 Operating experience (OPEX) is a valuable source for learning about and improving the safety and security of nuclear facilities and activities. Any OPEX process begins with collecting information from incidents and events. Within their reporting process, operators set thresholds for events, 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 establish clear criteria for the reporting of incidents/events to it by duty-holders (organisations whose facilities or activities are subject to regulation by ONR).
- 2.2 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.

3. PURPOSE AND SCOPE

- 3.1 The purpose of this document is:
- To advise duty-holders on what, when and how to notify and report to ONR following incidents or other events with the potential to affect nuclear safety, radiological safety, security, safeguards, and transport safety.
 - To facilitate the collection and processing of information about events and incidents necessary for delivery of ONR's regulatory functions and reporting obligations.

- 3.2 In the majority of cases, it will be the duty-holder that makes the initial notification that an abnormal event or incident has occurred.
- 3.3 This guide is developed to assist all sites and organisations that are regulated by ONR in relation to notifying nuclear, radiological, safeguards, security and transport related incidents. The document sets out the notification/reporting criteria, describes the timing and information that ONR requires, and how, when and to whom such information is to be provided. Serious industrial health and safety incidents, which require notification under the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013 (RIDDOR), are reported to ONR separately, by duty-holders using the Health and Safety Executive's (HSE) on-line reporting tool.
- 3.4 This guide excludes the existing arrangements for notification when a site's nuclear emergency arrangements have been invoked.

4. REPORTING OF INCIDENTS, OCCURRENCES AND OTHER EVENTS

4.1 NOTIFICATION VERSUS REPORTING

- 4.1.1 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.
- 4.1.2 The terms "notification" and "reporting" are often used as synonyms when discussing incidents being communicated by licensees and duty-holders to external organisations such as ONR. For the purpose of this document, the term "initial notification" will be used to mean the first communication between the operator and ONR whereby the salient details of an incident are conveyed by the most appropriate means e.g. email or telephone. For events meeting the Ministerial Reporting Criteria (MRC), this should comply with the relevant specific reporting requirements.
- 4.1.3 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 the operator to produce and send to ONR within 60 days of the incident a more complete report of the details related to the incident. For the purposes of this document, this is termed a Follow-Up Report (FUR). However, separate FURs may still need to be produced within other timescales to meet legal obligations; some will also require specific information as set out in relevant legislation.
- 4.1.4 If for any reason the duty-holder cannot send a FUR to ONR within 60 days of the incident, the duty-holder shall inform ONR as soon as practicable to discuss alternate arrangements. This may include the submission of one or several interim reports.

4.2 CRITERIA FOR NOTIFICATION AND REPORTING TO ONR

- 4.2.1 The notification for each incident should be given on a separate Incident Notification Form 1 (INF1), (see Appendix 5). 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.
- 4.2.2 Appendix 1 comprises a number of Tables and accompanying advice 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.
- 4.2.3 The criteria are arranged in the topic areas of: nuclear safety; radiological safety, nuclear security, nuclear safeguards and transport of radioactive material. 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 if needed.

- 4.2.4 The examples presented in this document are illustrative. The judgement for selection of appropriate event category according to applicable legal requirements remains responsibility of the duty-holder and could be subject to review by ONR. In evaluating what should be notified or reported to ONR, licensees, operators or duty-holders should consider the requirements of the applicable law.

4.3 CONTENTS OF THE INITIAL NOTIFICATION

- 4.3.1 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, including the current state of the affected plant or transport package.
- Identification of the likely or possible impact of the incident:
 - 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 other installations.
 - A provisional (or finalised where possible) International Nuclear and Radiological Event Scale (INES) rating, if applicable.
- For events occurring during transport: 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
- Whether the incident meets any of the MRC (Appendix 2 and 3) and if so, which BEIS/MoD/Devolved Administration(s) have been informed.
- 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.

- 4.3.2 Duty-Holders are advised to perform a basic check of INF1 forms completeness and adequacy, prior to transmitting to ONR.

4.4 TIMING OF NOTIFICATIONS

4.4.1 The expected timing of notifications is broadly proportionate to the significance of the incident being reported. This document specifies 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 and sent to ONR by e-mail as soon as is practicable.
- 24 Hours: As soon as practicable, but in any event **within 24 hours** (For security events reported under Nuclear Industries Security Regulations (NISR) 2003).
- Day: By the end of the next working day.
- Week: Within 7 calendar days.

4.4.2 In some cases, it may not be immediately obvious; or there may be some doubt about whether an incident or event meets the incident notification criteria; in such cases, it would be prudent to notify ONR. 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.

4.4.3 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. Duty holders should consider sending 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.

4.5 HOW TO NOTIFY OR REPORT INCIDENTS TO ONR

4.5.1 Appendix 4 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 INF 1, which can be downloaded from the ONR website (see Appendix 5).

4.5.2 Once completed, the form should be emailed to the relevant ONR account, with a copy to the relevant ONR inspector (if known). Contact details are provided in Appendix 4 and on the form.

4.5.3 Where immediate or out-of-hours notifications are necessary, then a telephone call and verbal report should be made. 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).

4.5.4 For Security-related notifications, a telephone call should be made to the relevant site security inspector during the working day or out of hours via the CNSS duty officer (see Appendix 4). This initial notification is to be followed up with submission of an INF 1 form by the duty-holder within 48 hours.

4.5.5 For Transport related notifications, a telephone call should be made in the first instance. ONR would expect this to be followed by 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.

4.5.6 If the duty-holder is unable to submit an INF1, then by agreement, Part A of the INF1 may be completed by an ONR Inspector (see Appendix 4).

4.6 CONTENTS AND TIMING OF FOLLOW-UP REPORTS

4.6.1 Each INF1 shall be followed up within 60 days by an appropriate FUR. The nature and extent of this report will be dependent on the severity of an incident or its potential to cause harm. The FUR shall contain, as appropriate:

- Event title, no greater than 20 words.
- The information that was contained in the preliminary notification report and any necessary updates - clearly indicated – for example, change to ONR or Duty-holder categories.
- The finalised INES rating.
- A detailed description of the progression of the incident, including any relevant circumstances.
- An assessment of the safety significance of the situation or incident, including the actual consequences and potential consequences.
- The findings from the investigation, particularly: the identified causes, contributory factors and a summary of the lessons learned.
- 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 disseminated.
- Confirm whether BEIS/MoD has been informed under the relevant Ministerial reporting arrangements.
- Indicate which, if any, other relevant regulators or Government Departments have been similarly notified.
- A press statement, if available.
- The FUR should be dated and should contain a unique reference to the original notification.
- A nominated contact for regulatory follow-up.

4.6.2 The INF1 format should not be used for FUR.

4.6.3 If for any reason the duty-holder cannot send a FUR to ONR within 60 days of the incident, the duty-holder shall inform ONR as soon as practicable to discuss alternate arrangements. This may include the submission of one or several interim reports

4.6.4 Where incident investigations do not merit 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 FUR.

4.6.5 If ONR decides to launch its own separate investigation, this should not preclude the FUR being provided by the duty-holder.

5. REGULATORY RESPONSE TO INCIDENTS

- 5.1.1 ONR responds to incidents in accordance with the investigation process (ONR-ENF-GD-005), the ONR's Enforcement Policy Statement, and other relevant guides. These require that enforcement is proportionate, targeted, consistent, transparent and accountable. The fundamental principle is that the regulatory response should be proportionate to the risks for health and safety or security, the hazard presented, the seriousness of the transgression, and the duty-holder's history of compliance.
- 5.1.2 Duty-holders' arrangements usually include event categorisation codes to indicate the activity involved and the safety significance of the event. ONR is aware of the use of specific event codes by duty-holders, but does not allow them to influence regulatory assessment of incidents. ONR is primarily concerned with the circumstances surrounding the incident, their significance for safety, licensee's corrective and preventive actions.
- 5.1.3 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 Licence Condition (LC) 7 and other requirements, particularly where a thorough investigation has been undertaken and corrective actions identified to 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.
- 5.1.4 ONR's Regulatory Intelligence Team shall maintain oversight of the relevant ONR's email account for incoming notifications.

6. ASSOCIATED DOCUMENTS AND REFERENCES

- Incident Notification Form (INF) 1 (most current version to be used)
- Technical Inspection Guide NS-INSP-GD-007: LC7 Incidents on the Site

APPENDIX 1 – CRITERIA FOR NOTIFICATION/REPORTING INCIDENTS TO ONR

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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 challenge design basis assumptions or the safety case for operation.	Week
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).

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, item (d). In addition it is reportable under the Ministerial Reporting Criteria (MRC); sub-category (a).

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).

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, the licensee should exercise an element of judgement 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.

NS06 - Any uncontrolled or unplanned reactivity excursion. (Day)

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.

<p>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)</p>

Origin of Criterion

LC27

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 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.

<p>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)</p>
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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 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 established directly by the licence condition, and as such, it 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

Non provided

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

Origin of Criterion

Ministerial Reporting Criteria (MRC), sub-category (f): “Events likely to attract, or that have attracted, significant national media or public attention”

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 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.

The INF1 form, and consequently – the AN01 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 may be reported under AN01.

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 5 of Part 1 of Schedule 7 to the IRRs 2017, except where the release is in a manner specified in an Authorisation under the Environmental Permitting Regulations 2010 (EPR 2010) or the Environmental Authorisations (Scotland) Regulations 2018 (EASR18).	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, release, spill or escape of radioactive material or waste which exceeds 50% of the limits set out in Column 5 of Part 1 of Schedule 7 to the IRR 2017.	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 EASR18.	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 2017.	Day
RS09	Where any individual is confirmed to have received an annual effective dose greater than the level set as subject to investigation under IRR17 Regulation 9(8).	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 is confirmed to have received an effective dose that exceeds or is likely to exceed 1mSv above that estimated for the task.	Week
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 6 of Part 1 of Schedule 7 to the IRRs 2017 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 (IRRs) 2017 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).

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 5 of Part 1 of Schedule 7 to the IRRs 2017, except where the release is in a manner specified in an Authorisation under the EPR2010 or the Environmental Authorisation (Scotland) Regulations 2018 (EASR18).
(Immediate)

Origin of Criterion

ONR Ministerial Reporting Criteria (MRC) - Category (d). IRRs 2017 Regulation 31(1).

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).
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, release, spill or escape of radioactive material or waste which exceeds 50% of the quantities set out in Column 5 of Part 1 of Schedule 7 to the IRRs 2017. (Day)

Origin of Criterion

IRRs 2017.

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, release or spill 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 (EASR18 in Scotland). (Immediate)

Origin of Criterion

Environment Agency/ Natural Resources Wales/ Scottish Environment Protection Agency, 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 (EA), Wales (NRW) in Wales 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/NRW/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 IRRs 2017. (Day)

Origin of Criterion

Ministerial Reporting Criteria (MRC) Cat. (b) and IRRs 2017 Regulation 26(1).

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 3 of the IRRs 2017.

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 IRRs 2017 Regulation 9(8). (Day)

Origin of Criterion

IRRs - 2017 Regulation 9(8).

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

IRRs 2017 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 move, a consignment containing two neutron sources was transferred into a lead shielded flask. Subsequent health physics survey of the cask found contact dose rates (neutrons) of 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 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 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) 2019, Regulation 18(1)

Discussion

This criterion is one required under REPP19 where the doses received by intervention personnel in a REPP19 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 6 of Part 1 of Schedule 7 to the IRRs 17 and which was under an employer's control is lost or has been stolen. (Day)

Origin of Criterion

IRRs - 2017 Regulation 31(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 6 of Sch. 7. 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 brought to or taken out of 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 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 to 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 ¹
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 ¹
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 ¹
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 ¹
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 ¹
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 ¹
SC10g	Any unauthorised access to any sensitive nuclear information kept on the premises, or any attempt to gain such access.	24 Hrs ¹
SC10h	Any threat to do anything which would fall within any of the above criteria 10 a-g.	24 Hrs ¹
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 ¹
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 ¹
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 ¹

¹ As soon as practicable but in any event within 24 hours.

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.
- Incursion into restricted airspace by a UAV
- 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 duty-holders must have an approved security plan and comply with the standards, procedures and arrangements within. Duty-holders 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 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

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 duty-holder 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 duty-holder'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 duty-holder'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

These criteria for reporting safeguards related incidents are derived from:

- Legal obligations placed onto the UK by international agreements with the IAEA,
- Legal obligations placed onto the UK by international agreements with Nuclear Cooperation Agreement partners, and
- Incidents that ONR must be notified of as the UK safeguards regulator.

Where notifications must also be sent to the IAEA, these are identified in the description.

ONR Category	Description	Timing
SG01	An event affecting the health and safety of an IAEA safeguards personnel	Immediate
SG02	It is believed that there has been, or might be, an unexpected loss or gain of qualifying nuclear material	Day
SG03	Information that qualifying nuclear material shipped by, or to the operator has been or may have been lost or considerably delayed during transfer	Day
SG04	An unexpected change in plant/material containment to the extent that qualifying nuclear material could have been transferred without being subject to agreed safeguards verification.	Day
SG05	Other changes from those specified in Basic Technical Characteristics (BTC) declarations or in an Accountancy and Control Plan (ACP) without notification to ONR Safeguards within timescales set out in Nuclear Safeguards (EU Exit) Regulations 2019 and that are assessed as sufficiently significant to risk compromising compliance with safeguards obligations (Week)	Week
SG06	Statutory accountancy reports not issued to timescales required under the Nuclear Safeguards (EU Exit) Regulations 2019	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 ONR that are assessed as having significant implications for compliance with safeguards obligations	Week
SG09	Other qualifying nuclear material and /or safeguards-related events 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.

SG01 – An event affecting the health and safety of an IAEA safeguards personnel (Immediate)

Origin of Criterion

UK/IAEA Voluntary Offer Safeguards Agreement (VOA) (Article 43)

Discussion

The purpose of this category is to ensure that ONR Safeguards and the IAEA safeguards inspectorate are informed without delay of instances where the health or safety of IAEA safeguards representatives may have been compromised. This includes conventional health and safety injuries, unexpected radiological exposure/dose and any other accidents that have a negative impact on the individual's health and safety.

The Operator must inform both ONR and the IAEA safeguards inspectorate. The IAEA should be informed via the following communication route:

The Director General
International Atomic Energy Agency
Wagramer Strasse 5
P.O. Box 100
A-1400 Vienna, Austria
Telephone: +43 1 2600
Facsimile: +43 1 26007
E-mail: Official.Mail@iaea.org

This category should also capture immediately any non-compliance by IAEA representatives with Operator health and safety provisions and policies.

Illustrative examples

- An IAEA safeguards representative is injured during an inspection at the Operator facility.
- An IAEA safeguards representative receives an unexpected high radiation dose from radioactive material. Note: this may also align with some RS criteria.
- An IAEA safeguards representative breaches site safety-related requirements.

SG02 - It is believed that there has been, or might be, an unexpected loss or gain of qualifying nuclear material (Day)

Origin of Criterion

Nuclear Safeguards (EU Exit) Regulations 2019 (Regulation 17)
UK/IAEA Voluntary Offer Safeguards Agreement (VOA) (Article 66(a))

Note: This reporting criterion aligns with **but does not replace** the need for a special report under Article 66(a) of the VOA and in compliance with Nuclear Safeguards (EU Exit) Regulations 2019 (Regulation 17).

Discussion

To ensure that ONR Safeguards and the IAEA safeguards inspectorate 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 qualifying nuclear material as it is reported in the Operators' nuclear material accountancy system;
- Shipper Receiver Difference or Inventory Difference figures that exceed operator justified action levels;
- 'Finds' of qualifying nuclear material other than as anticipated in the course of post operational clean out and/or decommissioning that are considered to be unexpected. E.g. finds of qualifying nuclear material in locations not historically associated with qualifying nuclear material flow or of an unexpected category, quantity or form.

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

Origin of Criterion

Nuclear Safeguards (EU Exit) Regulations 2019 (Regulation 23)
UK/IAEA Voluntary Offer Safeguards Agreement (VOA) (Article 89)

Note: This reporting criterion aligns with **but does not replace** the need for a special report under Article 89(c) of the VOA and in compliance with Nuclear Safeguards (EU Exit) Regulations 2019 (Regulation 23).

Discussion

To ensure that ONR Safeguards and the IAEA safeguards inspectorate are informed without delay of loss or unexpected delay in the shipment of qualifying 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 - An unexpected change in plant/material containment to the extent that qualifying nuclear material could have been transferred without being subject to agreed safeguards verification (Day)

Origin of Criterion

Nuclear Safeguards (EU Exit) Regulations 2019 (Regulation 17)
 UK/IAEA Voluntary Offer Safeguards Agreement (VOA) (Article 66)

Note: This reporting criterion aligns with **but does not replace** the need for a special report under Article 66 of the VOA and in compliance with Nuclear Safeguards (EU Exit) Regulations 2019 (Regulation 17).

Discussion

To ensure that ONR Safeguards and the IAEA safeguards inspectorate are informed without delay of compromise to qualifying nuclear material containment which may affect its safeguards verification/coverage.

Illustrative example(s)

- Leakage of qualifying nuclear material;
- Breakage of safeguards seals without advance notification;
- Evidence of tampering with IAEA seals or equipment.
- Known failures relating to key IAEA safeguards equipment (e.g. obstruction of surveillance cameras, power cuts leading to loss of surveillance, failure of lighting associated with surveillance).

SG05 - Other changes from those specified in Basic Technical Characteristics (BTC) declarations or in an Accountancy and Control Plan (ACP) without notification to ONR Safeguards within timescales set out in Nuclear Safeguards (EU Exit) Regulations 2019 and that are assessed as sufficiently significant to risk compromising compliance with safeguards obligations (Week)

Origin of Criterion

Nuclear Safeguards (EU Exit) Regulations 2019 (Regulations 3, 8)
 UK/IAEA Voluntary Offer Safeguards Agreement (VOA) (Article 44)

Discussion

The ONR should be notified of changes, in accordance with timescales set out in the Nuclear Safeguards (EU Exit) Regulations 2019, to the facility design or processes that may affect safeguards verification arrangements or qualifying nuclear material accountancy and control arrangements. This reporting criterion is to ensure that ONR Safeguards and the IAEA safeguards inspectorate are notified of situations where the required information has not been provided and where failure is assessed as sufficiently significant to risk compromising compliance with safeguards obligations.

Illustrative example

- Plant modifications which include new processes for handling qualifying nuclear material within a facility, or new routes for shipping material to or from the facility.
- A departure from the agreed recording and reporting system for qualifying nuclear material e.g. installation of a new nuclear material accountancy system which is not reflected in the BTC and/or ACP.

SG06 - Statutory accountancy reports not issued to timescales required under the Nuclear Safeguards (EU Exit) Regulations 2019 (Day)

Origin of Criterion

Nuclear Safeguards (EU Exit) Regulations 2019 (Regulations 13-16, 21, 22)

Discussion

To ensure that ONR Safeguards and the IAEA safeguards inspectorate (via ONR) are given explicit information about delays or prospective delays in the provision of statutory safeguards reports.

Illustrative examples

- Failure to provide inventory change reports (ICRs), physical inventory listings (PILs) and material balance reports (MBRs) to timescales required by Nuclear Safeguards (EU Exit) Regulations 2019.
- Failure to generate or supply special reports to the ONR as required by Nuclear Safeguards (EU Exit) Regulations 2019.
- Failure to provide advanced notification of imports/exports to timescales required by Nuclear Safeguards (EU Exit) Regulations 2019.

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)

Origin of Criterion

The Energy Act 2013 (Section 83 and Schedule 8)
UK/IAEA Voluntary Offer Safeguards Agreement (VOA) (Articles 68-87)

Discussion

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 IAEA safeguards inspectorate.

Illustrative examples

- Significant errors in the List of Inventory Items (LII) issued to the ONR and/or IAEA safeguards inspectors as a result of the annual Physical Inventory Take (PIT) and in support of 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 on 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 that are assessed as compromising compliance with safeguards obligations and may therefore be the subject of follow-up and possible escalation (e.g. denial of access for IAEA safeguards inspectors to the site / facility, escorts unavailable to support planned inspection activities etc.).

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

Origin of Criterion

Nuclear Safeguards (EU Exit) Regulations 2019 (Regulation 4)

Discussion

Facility operators must provide the ONR with 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 IAEA safeguards inspectorate (via ONR under UK/IAEA Voluntary Offer Safeguards Agreement Article 62(b)) receive 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 scheduled shipment/receipt of qualifying nuclear material;
- Other changes which may affect safeguards implementation/access (e.g. dates for site emergency exercises).

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

Origin of Criterion

A route for notifying ONR of any other event that ONR Safeguards are required to be notified of under Nuclear Safeguards (EU Exit) Regulations 2019 or related to the UK/IAEA Voluntary Offer Safeguards Agreement and its Additional Protocol or the UK's Nuclear Cooperation Agreements.

Discussion

This category ensures ONR is provided with timely information on qualifying nuclear material accountancy issues and potential inspection/verification shortcomings that risk compromising compliance with safeguards obligations which are not readily categorised according to criteria SG01-SG08.

Illustrative examples

- Unauthorised movement of qualifying nuclear material. This includes qualifying nuclear material shipped without authorisation of the receiver and/or other significant deficiencies in accountancy documentation, qualifying nuclear material shipped without an accountancy plan, movement not complying with its accountancy plan or working instructions;
- Other shortcomings in the documentation to substantiate qualifying nuclear material accountancy declarations
- Failure or poor performance of systems for the measurement and/or analysis of qualifying nuclear material (e.g. information indicating a bias in system output).
- An indication that the security of safeguards information may have been compromised, whether by site operator and/or the inspectorates;
- Where a Facility Attachment is in place in support of IAEA safeguards application, any possible breach of Facility Attachment requirements 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

This guidance covers transport of radioactive material by modes of transport for which ONR is the Competent Authority.

ONR is the GB Competent Authority for the civil transport of Class 7 (radioactive material) dangerous goods by road, rail and inland waterways. This statutory duty is given to ONR through the Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 (CDG) which are nuclear regulations under The Energy Act 2013 for Class 7 dangerous goods.

Similar regulations apply in Northern Ireland, where the Competent Authority for civilian road transport of Class 7 dangerous goods is the Department of Agriculture, Environment and Rural Affairs in Northern Ireland.

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 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 3.4, 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).

Ministerial Reporting Criteria for Transport events MRCT1.

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 3.4.1, 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).

Ministerial Reporting Criteria for Transport events MRCT2.

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 3.4.1 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).
Ministerial Reporting Criteria for Transport events MRCT1.

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).
Ministerial Reporting Criteria for Transport events MRCT3.

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 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).
Ministerial Reporting Criteria for Transport events MRCT4.

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 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) Ministerial Reporting Criteria for Transport events MRCT5.

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)
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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
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Origin of criterion

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) FOR INCIDENTS OCCURRING ON NUCLEAR LICENSED SITES AND ASSOCIATED OPERATIONS

MRC 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 3 to the Ionising Radiation Regulations (IRRs) 2017.
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 5 of Part 1 of Schedule 7 to the IRRs 2017, except where the release is in a manner specified in an Authorisation under the Environmental Permitting Regulation 2010 or Environmental Authorisations (Scotland) Regulations 2018 (EASR18).
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.
f	Events likely to attract, or that have attracted, significant national media or public attention.
g	Events that are categorised as INES level 2 and above.

APPENDIX 3 – MINISTERIAL REPORTING CRITERIA FOR TRANSPORT EVENTS (MRCT)

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

MRCT Criterion	Description of Criteria
MRCT1	A radiation emergency as defined in CDG (Amendment) Regulations 2019: means a non-routine situation or event arising during the carriage of Class 7 dangerous goods that necessitates prompt action to mitigate the serious consequences <ul style="list-style-type: none"> (a) Of a hazard from that situation or event (b) Of a perceived risk arising from such a hazard; or (c) To one or more of the following human life, health and safety, quality of life, property, the environment.
MRCT2	Theft or loss of High Consequence Radioactive Material in carriage (Note 1).
MRCT3	An occurrence during loading, carriage or unloading of class 7 dangerous goods involving (a) any release of activity greater than A ₂ 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 IRR17 to workers or members of the public (Notes 2 and 3).
MRCT4	An occurrence during loading, carriage or unloading of class 7 dangerous goods, where there is reason to believe that there has been a significant degradation in any Type B(U), Type B(M), Type C or Fissile package safety function (containment, shielding, thermal protection, or criticality) that may have rendered the package unsuitable for continued carriage without additional safety measures. (See Note 4).
MRCT5	An occurrence where class 7 dangerous goods have been transported with any non-compliance regarding radiation or contamination levels where those levels are greater than ten times the prescribed regulatory limits (See Note 5).
MRCT6	Events involving class 7 goods in carriage likely to attract, or that have attracted, significant national media or public attention.
MRCT7	Events involving class 7 goods in carriage categorised as INES level 2 and above.

Notes:

1. High Consequence Radioactive Material (HCRM) is defined in ADR 1.10.3.1.3.
2. A₂ is defined in ADR 2.2.7.1.3
3. The dose limits can be found in Schedule 3 of IRR17.
4. Type B(U); Type B(M); Type C and Fissile packages are approved, prior to use, by ONR in accordance with the requirements of ADR/RID. Any degradation to the safety function of a package, due to an occurrence or otherwise, would require permission from the competent authority before continued use. Requirements for these packages can be found in ADR/RID as follows: Type B(U) packages in 6.4.8, Type B(M) in 6.4.9 and Type C in 6.4.10.
5. The contamination limits can be found in ADR 2.2.7.1.2.

APPENDIX 4 – NOTIFICATION/REPORTING INCIDENTS OR EVENTS TO ONR

A1. The method of initial notification of an incident should be by completion of an ONR Incident Notification Form - INF1 (Appendix 5), which is then sent by email to a relevant ONR email account (see address details below).

A2. Where an “Immediate” notification is necessary, the duty-holder should call the relevant telephone number indicated on the **Contact ONR/Notify ONR** page of the ONR website (<http://www.onr.org.uk>). A verbal report may then be made to the ONR inspector and either followed up with an INF1 form sent by email or, by agreement, the ONR inspector may prepare the INF1 form on behalf of the duty-holder.

A4. For initial notifications that fall within a category of timing within a “Day”, an email of an INF 1 form should be sufficient. However, during extended public holiday periods or weekends, etc. the duty-holder should call the relevant telephone number indicated on the **Contact ONR/Notify ONR** page of the ONR website (<http://www.onr.org.uk>).

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 CNSS arrangements also provide for an out-of-hours Duty Officer (using the number indicated on the **Contact ONR/Notify ONR** page of the ONR website).

A6. Some transport-related incidents require immediate notification (under the ADR arrangements). Such notifications should be made by telephone to the relevant ONR inspector - using the number indicated on the **Contact ONR/Notify ONR** page of the ONR website (<http://www.onr.org.uk>).

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.

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 INF1 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 duty-holder 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 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
ONR.incidents@onr.gov.uk

Transport Safety

Sites and carriers of radioactive material subject to CDGR2009

Email Account
ONR.incidents@onr.gov.uk

Initial notifications can also be made to the relevant ONR inspector by telephone - using the number indicated on the **Contact ONR/Notify ONR** page of the ONR website. The relevant details will be recorded on an INF1 form (see Appendix 5).

Civil Nuclear Security

All Nuclear Sites and other duty-holders subject to NISR 2003

Email Account
ONR.CNS.Event.Reports@onr.gov.uk

Immediate notification should be given to ONR by the telephone numbers available on the **Contact ONR/Notify ONR** page of the ONR website - www.onr.org. The above telephone report should be confirmed in writing within 48 hours – by an INF1 form (see Appendix 5) e-mailed to the above account.

Copies of non-urgent notifications can be sent by post to:

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

APPENDIX 5 – ONR INCIDENT NOTIFICATION FORM (INF1)

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>