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| ONR Technical Inspection Guide (TIG)  LC35 – Decommissioning |



ONR Technical Inspection Guide

LC35 – Decommissioning

Authored by – Nuclear Liabilities Regulation Specialist Inspector

Approved by – Professional Lead – Nuclear Liabilities Regulation (NLR)

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| Issue No. | Description of Update(s) |
| 5 | Appendix added with guidance to inspectors for specific operational phases. |
| 6 | Updated review period. |
| 7 | Appendix added with guidance to inspectors on conducting EIADR compliance inspections. |

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# Introduction

1. Many of the licence conditions attached to the standard nuclear site licence require, or imply, that licensees should make arrangements to comply with regulatory obligations under the conditions. ONR inspects compliance with licence conditions, and also with the arrangements made under them, to judge the suitability of the arrangements made and the adequacy of their implementation. Most of the standard licence conditions are goal-setting, and do not prescribe in detail what the licensee’s arrangements should contain; this is the responsibility of the duty-holder who remains responsible for safety. To support inspectors undertaking compliance inspection, ONR produces a suite of guides to assist inspectors in making regulatory judgements and decisions in relation to the adequacy of compliance, and the safety of activities on the site. This inspection guide is one of the suite of documents provided by ONR for this purpose.

## Purpose

1. This guide has been prepared as a guide to Licence Condition (LC) 35 inspections performed by ONR inspectors during which they judge the adequacy of LC35 compliance arrangements and their implementation.
2. This guidance is complementary to ONR’s Technical Assessment Guide (TAG) for decommissioning on nuclear licenced sites [1] and ONR’s Safety Assessment Principles (SAPs) [2], specifically DC.1-9 (paragraphs 825 -877), which give guidance to ONR Inspectors assessing the adequacy of a licensee’s arrangements for the decommissioning of any plant or process which may affect safety.

# Licence Condition 35: Decommissioning

* 35(1): The licensee shall make and implement adequate arrangements for the decommissioning of any plant or process which may affect safety.
* (2): The licensee shall make arrangements for the production and implementation of decommissioning programmes for each plant.
* 35(3): The licensee shall submit to ONR for approval such part or parts of the aforesaid arrangements or programmes as ONR may specify.
* 35(4): The licensee shall ensure that once approved no alteration or amendment is made to the approved arrangements or programmes unless ONR has approved such alteration or amendment.
* 35(5): The aforesaid arrangements shall where appropriate divide the decommissioning into stages. Where ONR so specifies the licensee shall not commence nor thereafter proceed from one stage to the next of the decommissioning without the consent of ONR. The arrangements shall include a requirement for the provision of adequate documentation to justify the safety of the proposed decommissioning and shall where appropriate provide for the submission of this documentation to ONR.
* 35(6): The licensee shall, if so directed by ONR where it appears to them to be in the interests of safety, commence decommissioning in accordance with the aforesaid arrangements and decommissioning programmes.
* 35(7): The licensee shall, if so directed by ONR, halt the decommissioning of a plant and the licensee shall not recommence such decommissioning without the consent of ONR.

# Purpose of Licence Condition 35

1. This section explains the purpose of LC35, how it interacts with other relevant law and regulations, and key linkages with other LCs of particular relevance.
2. This guidance applies to all stages of any plant’s or process’ lifecycle, recognising that although decommissioning is the last stage of the overall lifecycle of any plant or process, decommissioning should be part of the design of any plant or process. It is therefore important that the guidance is applied across all the lifecycle stages targeting changes to plant or processes which may impact upon decommissioning. Section 8 provides guidance to aid ONR Inspectors target the application of LC35 requirements at the lifecycle phases.
3. Licence Condition 35(1) requires licensees to make and implement adequate arrangements for decommissioning any nuclear safety related plant or process on a nuclear licensed site. It is intended to ensure that licensees can demonstrate that risks to workers and the public are reduced so far as is reasonably practicable (SFAIRP) during decommissioning. The impact on decommissioning should also be considered whenever a licensee makes modifications to existing plant and processes.
4. Licence Condition 35(2) requires the licensee to make a decommissioning programme (or programmes) for each plant on the licensed site, which identifies the necessary resources to achieve a systematic and progressive reduction in hazard to a defined end state within a justified timescale.
5. Licence Condition 35(3) allows ONR to Approve all or part of a licensee’s decommissioning arrangements or programmes. For example, this condition could be used to Approve a licensee’s arrangements for monitoring and reporting its decommissioning progress across a licenced site. Licensees cannot deviate from approved arrangements without further engagement with and subsequent Approval from ONR, as required by Licence Condition 35(4).
6. Licence Condition 35(5) ensures that where appropriate, licensee’s arrangements provide for decommissioning to proceed as a series of sequential stages with the objective of each stage resulting in a systematic and progressive reduction in hazard. ONR may then apply regulatory control by Specifying hold points between stages. Subsequent Consent would then be required for the licensee to commence a stage or to proceed from one stage to the next.
7. Licence Condition 35(5) also requires Licensee’s arrangements to provide adequate documentation to justify the safety of the proposed decommissioning activities. For major decommissioning projects this usually takes the form of a safety case aligned with the requirements of LC23.
8. If the decommissioning programme is arranged as a series of sequential stages, each stage should be supported by an associated safety case addressing the plant or process configuration at the start-point and end-point together with the activities to be carried out. Guidance on the purpose, scope and content of safety cases throughout the lifecycle of a facility can be found in reference [3].
9. In all cases, the safety case should be proportionate to the associated radiological risks and hazards and provide a demonstration that the risks have been reduced SFAIRP.
10. Licence Condition 35(6) gives ONR the power to Direct that decommissioning commences in accordance with the licensee’s arrangements and programmes where that appears to ONR to be in the interests of safety.
11. Licence Condition 35(7) gives ONR the power to Direct that the decommissioning of any plant be halted. Re-commencement of decommissioning then requires Consent from ONR.
12. Decommissioning of nuclear power stations and reactors (>1kW continuous thermal load) cannot commence without Consent from ONR, in accordance with the Nuclear Reactors (Environmental Impact Assessment for Decommissioning) Regulations 1999 (as amended) (EIADR), apart from decommissioning projects which commenced prior to EIADR coming into force (19 November 1999). EIADR does not apply to decommissioning projects conducted on ‘Authorised Defence Sites’ which are under the control of the Crown. EIADR therefore applies for decommissioning of nuclear submarines, where the decommissioning work is carried out on a nuclear licensed site. However, EIADR does not apply to decommissioning of nuclear submarines, where the decommissioning work is carried out on ‘Authorised Defence Sites’.
13. Guidance on inspection of EIADR arrangements and their implementation can be found in Appendix 2 of this TIG. Alternatively, inspectors should contact the Nuclear Liabilities Regulation Specialism for further advice or guidance on the application of this regulation [4].

# Guidance on Arrangements for Licence Condition 35

1. Each licensee should have satisfactory arrangements to address all the requirements of LC35 including a means to comply with the regulatory powers in LC 35(3), 35(4), 35(5), 35(6) and 35(7), in the event of those powers being applied by ONR. The arrangements should be readily available, up-to-date and controlled under a management system compliant with the requirements of LC17 (Management Systems).
2. Arrangements for decommissioning should recognise all relevant aspects of nuclear safety, conventional safety, security and transport including applicable statutory duties.
3. LC35 (1) requires the licensee to document how all redundant, operational and proposed plant or processes will be decommissioned safely at end-of-life, in a manner that is compatible with delivering the intended site end-state. ONR equates this requirement to a comprehensive decommissioning strategy and plan, which aligns with the expectation of UK Government policy [5] that each operator should “produce and maintain a decommissioning strategy and plans for its sites”. Detailed guidance on ONR’s assessment of decommissioning strategies can be found in reference [1].
4. Decommissioning should be carried out as soon as is reasonably practicable, taking into account all relevant factors (see ONR SAP DC.3 – ‘Timing of decommissioning’). Should the licensee propose to defer decommissioning, reasons for the period of deferral should be explicitly justified in the safety case and strategy. The safety case should demonstrate that the risks posed by the plant will be acceptable, reduced to SFAIRP and properly controlled throughout the deferment period (typically identified as ‘Care and Maintenance’) and identify any requirements for regular EMIT. Principles of passive safety should be applied, so far as reasonably practicable, prior to any deferment period and the licensee should demonstrate that options for future safe decommissioning and management of resulting wastes will not be prejudiced by the deferment.
5. The strategy should be a live document which explains the totality of liabilities on the site, envisaged scope of decommissioning and the approaches to be taken.   
   It should consider options and timescales for decommissioning and identify the target end-state after completion of decommissioning. The strategy should be regularly reviewed and kept up to date at all stages of the facility’s lifecycle.   
   The level of detail provided in the strategy should be proportionate to the hazard posed by the radiological inventory and increase as the start date of decommissioning nears. The strategy should also serve as a main basis for the decommissioning plan. Further guidance on regulatory expectations of the decommissioning strategy can be found in reference [1].
6. In line with the expectations of LC35 (2) the licensee should produce a decommissioning programme for each facility. This should align with the decommissioning strategy and become more detailed as the facility approaches the end of operations. The programmes should demonstrate a continued and systematic reduction in hazard until a clearly defined and justified end state is achieved.
7. As a minimum the decommissioning programme should:
   1. Be consistent with the decommissioning strategy.
   2. Identify how decommissioning of each individual facility will be staged within the overall programme for the licensed site. This should include waste management (treatment and disposal) facilities both on and off the licenced site required to support decommissioning.
   3. Identify the human resources required to safely deliver decommissioning, with any significant organisational changes justified in accordance with the requirements of LC36.
   4. Identify milestones related to the systematic and progressive reduction of hazard and risk as decommissioning progresses, and detail the characterisation required to demonstrate achievement of the intended end state.
8. ONR expects that an adequate waste management strategy should be in place for all waste expected to be generated during decommissioning, prior to decommissioning taking place. In some instances, a prolonged period of storage of Higher Activity Wastes (HAW) destined for the Geological Disposal facility (GDF) may be required. So far as reasonably practicable these wastes should be stored in accordance with good engineering practice and in a passively safe condition supported by a valid safety case. Further details on regulatory expectations can be found in reference [6] and the Joint Guidance from the ONR, the Environment Agency, the Scottish Environment Protection Agency and Natural Resources Wales to Nuclear Licensees on ‘The Management of Higher Activity Radioactive Waste on Nuclear Licensed Sites’ [7]. Further advice can be sought from the ONR’s Nuclear Liabilities Regulation Specialism.

# Guidance on Inspection of Arrangements and their Implementation

1. The Inspector should check that the decommissioning arrangements explicitly address all parts of Licence Condition 35, are readily available, up-to-date, and controlled under a management system compliant with the requirements of LC17 (Management Systems).
2. The Inspector may choose to review the licensee’s decommissioning strategy, to see if the plant and processes accurately reflect the current site configuration and operations.
3. Aspects of the decommissioning strategy which the inspector may wish to sample from include:
   1. Decommissioning optioneering:

* A consideration of the options for decommissioning of redundant, operation and proposed facilities. Relative strengths of the preferred options and, should the preferred option not include immediate dismantling, rigorous justification for any period of deferment should be included.
  1. Description of the decommissioning scope:
* A description of the current status of the facility and associated liabilities, including estimations of the types and quantities of radioactive wastes that are expected to arise during decommissioning, this may include secondary wastes.
* Defined end states for plants, buildings and the overall licenced site.
  1. Identification of interdependencies:
* Identification of any interdependencies with other facilities, both on and off site, and how these will be managed (including, but not limited to, downstream radioactive waste management facilities and effluent management systems).
* A clear radioactive waste management strategy for all forms of waste expected to arise during decommissioning, including any wastes to be retrieved from legacy facilities and how this will be managed.
  1. Knowledge management arrangements for decommissioning:
* Clear interfaces with arrangements for compliance with LC 19 ‘Construction or installation of new plant’, LC20 ‘Modification to design of plant under construction’ and LC22 ‘Modification or experiment on existing plant’, to ensure any changes consider the impact to decommissioning.
* How institutional knowledge of facility, plant and site will be generated, recorded and maintained throughout the lifecycle of the facility. This may include;
  + Construction information at the design phase (e.g. photographic records of areas that will be inaccessible after construction, as built construction material information).
  + Radionuclide information developed from operational records and surveys, including significant events and incidents.
  + Lessons learned from the decommissioning of similar facilities elsewhere.
  + Records of modifications to the design or change of use of a facility that may have an impact for decommissioning.

1. The Inspector should confirm that the licensee has a decommissioning programme which identifies the significant milestones and priorities in the systematic reduction of hazard that reflects the decommissioning strategy.
2. The Inspector may choose to sample the licensee’s decommissioning plan which should identify how they intend to decommission each facility. This should include how they are capturing the operational history of the facility and processes throughout their life-cycle, demonstrating the information is accessible to inform decommissioning. This should include all data that may impact decommissioning activities, including conventional hazards alongside radiological hazards. Examples of knowledge important to decommissioning can include:

* As-built construction materials and methods if available for older plant and processes.
* Modifications to plant or operational limits and conditions that may have an impact on safety during decommissioning (for example that may increase irradiation of components due to longer than anticipated use of plant or processes).
* Abnormal events (for example unexpected adverse reactions when changing the chemicals in a process).
* History of leaks and escapes, including the extent of recovery and any instances of ground contamination.
* Known defects and obsolescence related to equipment needed during decommissioning.
* Location of concealed services that may result in for example redundant cables that are still live.
* Inventory of radioactive materials and wastes.
* Waste package records to support their future storage, transport and disposal.
* Asbestos records, including a register of asbestos containing materials and surveys (noting that surveys carried out during the operational phase may not be comprehensive enough for the purposes of decommissioning).
* Radiation surveys and radioactive contamination of asbestos lagging, complicating the decommissioning activities.

1. The Inspector may consider the adequacy of the licensee’s record management system for records required for decommissioning purposes. Decommissioning typically commences beyond the LC6(2) 30-year preservation period, and therefore the Inspector could seek assurance on the adequacy of the licensee’s arrangements for; identification, preparation, review, retention and ownership of institutional knowledge important to decommissioning so that it will be available when required.
2. The extent to which a licensee will implement arrangements for LC35 is dependent upon the lifecycle phase of the plant and processes for which it is responsible.   
   The scope, frequency and objectives of LC35 compliance inspections need to reflect this and target licensee activities which may have an impact on current or future decommissioning. An appendix is included as suggested areas that the Inspector could sample from, depending upon the nature of on-going activities on the nuclear licenced site.

# Further Reading

* Fundamental Safety Principles, (SF-1), IAEA
* IAEA Safety Standards Series, General Safety Requirements GSR Part 6, 2014 Decommissioning of Facilities.
* IAEA Safety Standards Series, Safety Requirements No WS-R-5, 2006 Decommissioning of Facilities Using Radioactive Materials.
* IAEA Safety Standards Series, Safety Guide No WS-G-5.2, 2008 Safety Assessment for the Decommissioning of Facilities using Radioactive Material.
* IAEA Safety Standards Series, Safety Guide No SSG-47, 2018 Decommissioning of Nuclear Power Plants, Research Reactors and Other Nuclear Fuel Cycle Facilities.
* WENRA Working Group on Waste and Decommissioning (WGWD) Report Decommissioning safety reference levels (version 2.2), 22 April 2015,
* IAEA Nuclear Energy Series, Guide No NW-G-2.1, 2011, Policies and Strategies for the Decommissioning of Nuclear and Radiological Facilities.
* Command 2919. Review of Radioactive Waste Management Policy. Final Conclusions. Presented to Parliament by Command of Her Majesty, July 1995 HMSO.
* Office for Nuclear Regulation Technical Inspection Guide: Accumulation of Radioactive Waste, NS-INSP-GD-032.
* Office for Nuclear Regulation Technical Inspection Guide: Disposal of Radioactive Waste, NS-INSP-GD-033.
* Office for Nuclear Regulation Technical Inspection Guide: Leakage and Escape of Radioactive Material and Radioactive Waste, NS-INSP-GD-034.
* Office for Nuclear Regulation Technical Assessment Guide: Land Quality Management, NS-TAST-GD-083.
* Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management, INFCIRC/546, IAEA Vienna 1997
* Office for Nuclear Regulation Technical Assessment Guide: Guidance on the Purpose, Scope and Content of Nuclear Safety Cases, NS-TAST-GD-051.
* Office for Nuclear Regulation, Project Assessment Report, ONR Strategy for the Regulation of Nuclear Licensed Sites Entering a Quiescent Phase, ONR-DFW-PAR-15-013.
* Office for Nuclear Regulation, Guidance on the Nuclear Reactors (Environmental Impact Assessment for Decommissioning) Regulations – <http://www.onr.org.uk/eiadr.htm>
* Office for Nuclear Regulation, Technical Assessment Guide: Guidance on the Demonstration of ALARP (As Low As Reasonably Practicable), NS-TAST-GD-005.

# Appendix 1

## Facility under design

1. Decommissioning should be considered as part of the design phase for any new facility. The licensee’s arrangements should include the requirement to develop a decommissioning strategy during this design phase. For a new facility, ONR would expect the intended decommissioning methods to be based on current technology.
2. During initial design, for compliance with LC35 detail should be included on:

* Adequacy of access/egress routes to enable removal of large redundant plant and processes.
* Where the decommissioning strategy includes assumptions on how the plant will perform in practice, check whether the assumptions are realistic and take a precautionary approach to uncertainty.
* Provision of additional space around large vessels or plant items that are expected to require in-situ decommissioning.
* Provision of lay down areas, which can support decommissioning, in addition to operational maintenance activities.
* Any proposals to include below-ground active services and whether this would be compatible with the intended site end-state.
* Measures to minimise contamination spread and avoid contamination traps.
* Whether the intended ventilation system will minimise the spread of contamination, and therefore minimise the scope of future decommissioning activities.
* Potential negative impacts for decommissioning from application of modular construction methods, which may not be easily reversible.
* Materials selection (for example high purity metals to reduce levels of activation and surface finishes that are easier to decontaminate).
* Incorporation of lifting features (lifting points, crane requirements etc.) to facilitate decommissioning.
* On a multi-facility site, consideration of any impacts to the site decommissioning strategy and programme through the inclusion of a new facility.

## Facility under construction

1. When inspecting a new facility under construction for compliance with LC35 the aspects which require consideration during the design of the facility remain relevant, in addition the Inspector may consider the licensee’s proposed means of capturing as built records and retaining these until the plant or process is decommissioned.

## Facility undergoing Modification

1. When inspecting an existing facility that is undergoing a modification, in line with the requirements of LC22 (Modification or experiment on existing plant) [8], the following could be considered:

* Any changes to existing design features that may affect the decommissioning strategy.
* Any implied changes to the working environment for decommissioning (e.g. introduction of new physical restrictions, radiological and/or conventional safety hazards).
* Whether the modification will affect plant or process lifetimes (longer usage may increase radioactivity present).
* Any impacts for interdependencies between facilities, claimed within the decommissioning strategy (e.g. creation of new decommissioning waste streams that may require a new waste management route to be established or modification to existing waste stream volumes).
* Impacts for the site decommissioning strategy and programme (e.g. any threats to the viability of intended decommissioning methods, or the site end state).

## Facility under operations

1. When inspecting an operational facility for compliance with LC35, the Inspector may consider whether the licensee:

* Undertakes regular reviews of its decommissioning strategy (aligning with the expectations of LC15 ‘Periodic review’ [9]) and programme, to ensure they remain accurate, up-to-date and aligned with extant relevant good practice
* Reviews whether assumptions made in the decommissioning strategy and plan remain valid
* Considers how plant and processes have aged, including creation of potential high dose areas which may challenge decommissioning.

1. For operational reactors nearing the end of generation, Inspectors should consider whether the licensee has adequately considered the requirements of EIADR.

## Facility transitioning to decommissioning (POCO)

1. UK government policy [5] and international standards promote delivery of decommissioning as soon as reasonably practicable, taking into account all relevant factors. When inspecting a facility that is transitioning from operations to decommissioning for compliance with LC35, the Inspector may consider:

* The licensees preparations for decommissioning, including, but not limited to, post operation clean out (POCO), consideration of the management of residual operational wastes, treatment and disposal (or storage) of wastes recovered from POCO.
* The licensee’s consideration of the need to construct / modify facilities to support decommissioning activities. Examples include the requirement to build new bespoke facilities to enable the recovery, processing and packaging of radioactive wastes.
* The decommissioning programme milestones to reflect where a particular plant or process represents a significant step in risk reduction on the site.
* The characterisation and survey work required to support and enable decommissioning to commence.

## Facility undergoing decommissioning.

1. As decommissioning progresses the licensee should develop a greater understanding of its facility through targeted radiological and structural surveys and intrusive works. For legacy facilities it has been found that intrusive works (for example demolition of structures) identifies discrepancies between design drawings and the ‘on-the-day’ structures, requiring the licensee to be dynamic in its review of managing safety during decommissioning. As a result, lessons learnt now places a greater importance on maintaining records for plant and processes which could impact decommissioning.
2. When inspecting plant and processes being decommissioned for compliance with LC35, the Inspector may consider whether the licensee has:

* Clear demarcation of the decommissioning area and access/egress control.
* Suitable and sufficient systems of work are in place and being adhered to.
* Included operational experience into the decommissioning methodology.
* Provided demonstration of monitoring interdependencies with other facilities, systems or services.
* A strategy and plan which will avoid the creation of newly radioactive contaminated land or groundwater, and will enable for the remediation of legacy contaminated land or ground water (land quality management) [10].
* The general condition of the site or facility for any signs of degradation that might be pre-cursors to structural failure or loss of containment (ingress of groundwater, in-leakage of rainwater, wind damage, incursion of vegetation, structural concrete spalling or steelwork corrosion).

1. Conventional safety hazards’ relative importance will increase as a facility’s radiological inventory is removed. The standards of hygiene and the safety culture as the radiological hazard is removed, moving more towards a conventional demolition site, should be considered by the inspector throughout the decommissioning of a facility. Aspects of conventional safety relevant to decommissioning are subject of wide range of targeted legislative requirements, for example work in confined spaces, work at height or application of aggressive chemicals. Further advice should be sought from the ONR Conventional Health and Safety Specialist Inspectors.

## Facilities Entering or Within a period of Care and Maintenance

1. A period of care and maintenance (C&M) here is a specific planned quiescent period of time within the decommissioning programme, which will form a part of a licensee’s differed decommissioning approach. This is usually between two phases of decommissioning, the first period to prepare the site for C&M, the second to deliver final site clearance.
2. Where a decommissioning strategy includes a period of C&M, the licensee should demonstrate that the facility is passively safe and risks are reduced SFAIRP prior to entering the C&M period. This expectation is maintained throughout the C&M period. ONRs strategy for the regulation of nuclear licensed sites entering a quiescent phase can be found within reference [11].
3. Should the licensee inform ONR of its intention to apply a defer decommissioning approach, the inspector should consider any associated implications, such as the continued future availability of waste treatment and disposal routes which may impact final site clearance in the future. Further advice can be sought from the ONR’s Nuclear Liabilities Regulation Specialism.
4. When inspecting a facility that is about to enter or within a period of C&M for compliance with LC35, the Inspector may consider:

* Whether there is a satisfactory maintenance programme for the remaining plant or processes. This should ensure its continued integrity for the deferral period. In particular, this programme should include identification of all relevant inspection routes within the plant/facility, and measures for securing the safety of these, as well as any processes necessary to gain initial safe access to the plant.
* Whether the stored inventories are in a passively safe condition, SFAIRP, and whether evidence indicates these remain passively safe.
* Whether the reliance on active systems to maintain an adequately safe condition has been minimised SFAIRP.
* If the licensee is implementing an adequate regime of reassurance monitoring.
* Whether the licensee is achieving adequate retention of records for the envisaged deferral period. Including the availability of licensees records showing any residual inventories and hazards (radiological and conventional) within the plant/facility.
* Land quality management arrangements, including groundwater monitoring.
* Management of secondary waste arisings.
* Site management (manned or unmanned) arrangements.

# Appendix 2 – Guidance on Inspection of EIADR Arrangements and their Implementation

## Purpose and Scope

1. The Nuclear Reactors (Environmental Impact Assessment for Decommissioning) Regulations 1999 (as amended) (EIADR) requires the environmental impact of projects to decommission nuclear power stations and other nuclear reactors to be considered in detail before ONR consent for the decommissioning project is granted. EIADR applies to the whole decommissioning project from the point at which work is undertaken to permanently prevent the continued operation of the power station or reactor, through to final site clearance.
2. This appendix focusses on providing ONR Inspectors with guidance on undertaking inspections for ongoing compliance with EIADR. This includes confirming the effective implementation of mitigation and monitoring measures proposed in the Environmental Statement (ES) and subsequently reported on in the annual Environmental Management Plan (EMP) submitted to ONR as a condition of the EIADR consent and regulating compliance with the standard conditions attached to EIADR consent given by ONR. Further guidance on the EIADR application process and the content of the ES is available in ONR’s TAG for EIADR [12].
3. The EIADR Team within ONR are able to provide advice on EIADR matters and should be consulted as appropriate.

## Guidance on Inspection of EIADR Arrangements and their Implementation

1. EIADR requires ONR to grant consent before the decommissioning project can begin. Inspectors will engage with licensees via routine regulatory engagement and EIADR compliance inspections to resolve any shortfalls in EIADR arrangements and implementation throughout the decommissioning project. As a guide, EIADR compliance inspections should be carried out approximately every five years but could be more frequent depending on the rate of progress of the decommissioning project. Inspectors should consider carrying out integrated LC35 and EIADR compliance inspections where possible.
2. The ES should facilitate effective environmental management over the full life of a decommissioning project. Decommissioning should be carried out in line with the consented decommissioning project; ongoing EIADR compliance will include consideration and monitoring of environmental impacts throughout the decommissioning project, and reporting of the progress of the decommissioning project and effectiveness of the mitigation measures in EMPs.
3. Each licensee should have arrangements for EIADR compliance, including managing changes to the decommissioning project. This will include having satisfactory arrangements to address and implement the mitigation and monitoring measures proposed in the ES, as well as conditions attached by ONR to the consent. Inspectors will need to satisfy themselves that these arrangements are implemented and throughout the decommissioning project. The arrangements should be readily available, up-to-date and controlled under a management system.
4. Inspectors should be aware that the licensee may choose to use an Environmental Management System (EMS) as part of its overall integrated management system. The use of EMSs is widespread and can be considered as good practice for managing the overall review, assessment and ongoing improvement of an organisation’s environmental effects. Accreditation of the EMS (e.g., ISO 14001) demonstrates a recognised industry standard has been attained. Further guidance on ONR expectations for Management Systems is available in ONR’s guidance on LC17 (Management Systems) [13].
5. Inspectors may wish to sample licensees’ EIADR arrangements as part of EIADR compliance inspections, including licensees’ processes for modifications and change control for decommissioning activities on site, to check that EIADR is captured as a consideration, for example in the Plant Modification Process (PMP) process. Inspectors could also sample licensees’ arrangements for managing waste arising from the decommissioning project and how these are considered under EIADR. ONR expects that an adequate waste management strategy should be in place for all waste expected to be generated during decommissioning, and that these wastes are appropriately managed throughout the decommissioning project to meet the expectations of LC32. The Nuclear Liabilities Regulation Specialism can provide advice on this aspect of the decommissioning project.
6. Inspectors should satisfy themselves that competent environmental professionals are employed or contracted by the licensee to implement and manage environmental aspects of the decommissioning project. Where contractors are used, the licensee should demonstrate its intelligent customer capability   
   [14]. To support their compliance inspections, Inspectors may wish to sample training records for staff with responsibility for EIADR compliance; further guidance can be found in the guidance for compliance with LC10 (Training) [15] and LC12 (Duly authorised and other suitably qualified and experienced persons) [16].
7. Under the conditions attached to EIADR consent, ONR requires the licensee to prepare and implement an EMP to cover mitigation measures to prevent, reduce and where possible offset any significant effects on the environment. The consent conditions state that the EMP shall:

* List the mitigation measures that are already identified.
* List the options to implement work activities where mitigation measures may be required but where selection of an option will only be possible in the future.
* Identify mitigation measures for options that have been selected, giving reasons for their selection.
* List the work activities where mitigation measures may be required but where assessments to identify mitigation measures will only be possible in the future.
* Identify mitigation measures from assessments carried out, giving reasons for their selection.
* Describe the effectiveness of mitigation measures over time.
* Describe significant changes to the mitigation measures in light of experience, giving reasons for such changes.

1. The EMP should link directly back to the ES and conditions imposed by ONR, and facilitates effective environmental management by:

* Creating a framework for ensuring and demonstrating conformance with legislative requirements, mitigation and monitoring set out in the ES and conditions attached to consent.
* Providing a link between design and implementation stages of the decommissioning project.
* Ensuring a communication and feedback system is in place between relevant stakeholders.
* Identifying what actions are required, when they are required and those responsible for delivering the actions [17].

1. Inspectors should satisfy themselves that agreed mitigation, monitoring and conditions are set out clearly in the EMP and in sufficient detail so that Inspectors can carry out ongoing compliance inspections against the EMP (rather than the ES).
2. It is a requirement of the conditions attached to the EIADR consent that the licensee should submit an EMP to ONR for regular review, typically on an annual basis. ONR has the ability to change the periodicity of the EMP submission and should agree this with the licensee; instances where less frequent submission might be appropriate include during Care & Maintenance (if part of the decommissioning plan), during which time the site is in a quiescent state.   
   The licensee should have arrangements for any more frequent, ad hoc reporting of any data that highlights poor performance or non-conformance against standards, predictions or conditions.
3. In some cases, detailed design of mitigation and monitoring arrangements may only occur after EIADR consent has been given by ONR. The licensee should review the EMP prior to submission to ONR and ensure that it captures progress with the decommissioning project and ongoing effectiveness of mitigation measures.   
   Where further design of mitigation is required, Inspectors should satisfy themselves that the mitigation is deliverable, and evidence of stakeholder involvement   
   (e.g., with contractors) in the design can give confidence that this is the case. Where further stakeholder consultation is required to agree the form of mitigation and monitoring, the programme of engagement for achieving this should be set out in the EMP.
4. Any further monitoring or mitigation requirements arising post consent should be reported in the EMP, giving reasons for such changes. Monitoring and mitigation requirements should avoid duplication with existing monitoring regimes; the EMP should therefore refer to other monitoring regimes on site and the responsible environmental regulator/competent authority.
5. Inspectors may choose to inspect the site to ensure a piece of mitigation or monitoring equipment is in place prior to an activity or stage of decommissioning starting. Inspectors could also consider site compliance inspections after an activity or decommissioning stage has finished, particularly if the licensee has committed to a required end-state after that activity or stage.
6. It is the licensee’s responsibility to confirm that its claims in the ES are being met. The licensee should undertake evaluation (or environmental impact auditing), which involves:

* Comparing the impacts predicted in the ES with those that actually occur.
* Assessing whether the impact prediction in the ES is satisfactory.
* Assessing whether mitigation and enhancement measure are effective [17].

1. As part of EIADR compliance inspections, Inspectors may choose to sample evidence of the licensee’s evaluation, for example in the form of assessment/data analysis reports. Other documents that could be sampled include:

* Information on relevant surveys or studies conducted to monitor environmental impact as a result of the decommissioning project.
* System health reports for systems related to environmental monitoring.

1. Both the licensee’s evaluation process and ONR compliance inspections should provide feedback into the ongoing environmental management of the decommissioning project and Inspectors should satisfy themselves that relevant lessons learnt are being implemented by the licensee and that these are included in the EMP. Where the licensee is undertaking or planning to undertake multiple decommissioning projects across multiple sites there is an opportunity for the licensee to use the evaluation process and compliance inspection feedback on one decommissioning project to facilitate improved environmental performance across its overall decommissioning programme.
2. The length of a decommissioning project means there may be changes that challenge the validity of assumptions and assessments made in the ES.   
   These could include changes in legislation or changes in the environmental baseline, including cumulative changes. Good practice would be for the licensee to conduct a periodic peer review (e.g., every three to five years) of the overall environmental management of the decommissioning project, to ensure such changes are captured along with any requirements for further assessment and updated mitigation and monitoring arrangements. A peer review should consider performance of mitigation measures and whether good practice is being applied to environmental management, mitigation, monitoring, assessments and evaluation.
3. Any changes or extensions to a decommissioning project must be considered under Regulation 13 of EIADR, for example, these can include changes to the timing of the decommissioning project or changes in the decommissioning methodology. It is the duty of the licensee to decide whether an application should be made to ONR for a determination as to whether an EIA is required. Although it is not an explicit requirement of the regulations, ONR expects the licensee to have arrangements in place to identify and assess changes to the decommissioning project so that an informed decision on applying to the ONR for a determination can be made. Inspectors should satisfy themselves that the licensee’s process for screening changes or extensions is robust, and consistent with the process outlined in Appendix 3 of ONR Guidance on EIADR [4], and with guidance provided in ONR’s TAG for EIADR [12].
4. Screening assessment reports should provide sufficient information to enable Inspectors to understand how potential environmental changes to the decommissioning project are assessed and recorded, and the criteria that the licensee has used to judge the significance of the impact on the environment. In addition to this, the Inspector should confirm that the potential for cumulative impacts of multiple ‘small’ changes to the decommissioning project is considered. The screening assessment process under Regulation 13 should be built into the licensee’s arrangements for considering any modifications to the decommissioning project to ensure that the environmental impact is considered appropriately.
5. Whilst undertaking compliance inspections, Inspectors should engage with the licensee to discuss anticipated changes to the decommissioning project that will need to be considered in the context of EIADR, and the timescales for those changes.
6. Where there are changes or an extension in the decommissioning project, then Inspectors should satisfy themselves that any further mitigation, monitoring requirements and conditions are included in an updated EMP.

# References

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| --- | --- |
| [1] | ONR, “NS-TAST-GD-026 - Decommissioning”. |
| [2] | ONR, Safety Assessment Principles for Nuclear Facilities, ONR, 2014. |
| [3] | ONR, "NS-TAST-GD-051 - Guidance on the Purpose, Scope and Content of Nuclear Safety Cases". |
| [4] | ONR, “Guidance on the Nuclear Reactors (Environmental Impact Assessment for Decommissioning) Regulations,” 2022. |
| [5] | H.M Government, “The Decommissioning of the UK Nuclear Industry’s Facilities,” September 2004. [Online]. Available: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\_data/file/361068/The\_Decommissioning\_of\_the\_UK\_Nuclear\_Industrys\_Facilities.pdf. |
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| [7] | ONR, “The management of higher activity radioactive waste on nuclear licensed sites,” July 2021. [Online]. Available: https://www.onr.org.uk/wastemanage/waste-management-joint-guidance.pdf. |
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| [9] | ONR, "NS-INSP-GD-022 - LC15: Periodic review". |
| [10] | ONR, "NS-TAST-GD-083 - Land Quality Management"*.* |
| [11] | ONR, ONR-DFW-PAR-15-013 - Project Assessment Report, ONR Strategy for the Regulation of Nuclear Licensed Sites Entering a Quiescent Phase, CM9 2016/6965. |
| [12] | ONR, “NS-TAST-GD-105 - The Assessment of Environmental Impact Assessment (EIA) Decommissioning Regulation Submissions,” 2022. |
| [13] | ONR, “NS-INSP-GD-017 - LC17: Management Systems,”. |
| [14] | ONR, “NS-TAST-GD-049 - Licensee Use of Contractors and Intelligent Customer Capability”. |
| [15] | ONR, “NS-INSP-GD-010 - LC10: Training”. |
| [16] | ONR, “NS-INSP-GD-012 - LC12: Duly authorised and other suitably qualified and experienced person”. |
| [17] | J. Glasson and R. Therivel, Introduction to Environmental Impact Assessment - 5th Edition, New York, NY, US: Routledge, 2019. |