Leadership and Management for Safety Reviews			
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Professional Lead:		Professional Lead – HOC	
Revision Commentary:	Formerly NS-TAST-GD-093, now re-formatted as an ONR Guidance Document. The methodology has been revised to ensure consistency with the methods outlined in TD-HOC-GD-001.		

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1. Introduction

1. The ways in which an organisation is led and managed affects nuclear safety outcomes. Leadership and Management for Safety (LMfS) is a collective term used to describe those characteristics of leadership and management which are known to positively affect nuclear safety outcomes. These characteristics are outlined in the following four ONR Safety Assessment Principles (SAPs) for Nuclear Facilities [1]:

    - **MS.1: Leadership**: 'Directors, managers and leaders at all levels should focus the organisation on achieving and sustaining high standards of safety and on delivering the characteristics of a high reliability organisation'.
    - **MS.2: Capable Organisation**: 'The organisation should have the capability to secure and maintain the safety of its undertakings'.
    - **MS.3: Decision Making**: 'Decisions made at all levels in the organisation affecting safety should be informed, rational, objective, transparent and prudent'.
    - **MS.4: Learning**: 'Lessons should be learned from internal and external sources to continually improve leadership, organisational capability, the management system, safety decision making and safety performance'.

2. ONR divisional arrangements may require that a periodic review of a licensee's LMfS performance is undertaken using these SAPs as the basis for the review. Known as an 'LMfS review', this document provides a methodology for undertaking such a review.

2. Purpose and Scope

3. The **primary purpose** of an LMfS review is to provide insights which enable the development and resourcing of future intervention plans. ONR-INSP-GD-059 'Guidance for Intervention Planning and Reporting' [2] notes that ONR divisions should:

> "…consider available intelligence to inform inspection priorities and ensure that the Integrated Intervention Strategy (IIS) is risk informed. To provide the necessary inputs, the revised Regulatory Intelligence process (on HOW2) requires professional leads or specialisms to hold an annual intelligence review that identifies specific sub-division or generic actionable intelligence, for consideration in inspection planning. These [annual intelligence] reviews are to consider a range of conditioned intelligence, regulatory experience, and effectiveness inputs".

4. An LMfS review is one way in which the HOC professional lead and LMfS specialism meet the requirement to hold annual intelligence reviews.

5. A **secondary purpose** of an LMfS review is to inform the assessment of dutyholder attention levels which is to be carried out in accordance with ONR-GEN-GD-013 'Guidance on the Assignment of Dutyholder Attention Levels' [3].

6. The **scope** of an LMfS review is bounded by SAPs MS.1 to MS.4.

3. Responsibilities

3.1. Delivery Lead

7. The delivery lead is responsible for determining which licensees and site(s) will be subject to an LMfS review[1], and the scope of the review.

3.2. LMfS Inspector

8. The LMfS inspector is responsible for:

Identifying data sources

- Facilitating the identification of data sources for subsequent analysis.
- Collating the data sources into a document pack and making the packs available to all persons involved in the data analysis.

Analysing the data

- Assembling and leading a small team of inspectors to analyse the data, or in lieu of a team approach, analysing the data themselves.
- Drafting an assessment note outlining the initial findings of the data analysis.
- Holding several one-to-one meetings with key divisional personnel such as the site inspector(s) and delivery lead to share, debate and enhance insights in advance of the LMfS review meeting.
- Adding the draft assessment note to the document pack and making the packs available to all persons involved in LMfS review meeting.

Reviewing and making use of the insights

- Identifying participants for the LMfS review meeting.
- Developing the LMfS review meeting agenda.
- Leading the presentation of the insights and facilitating a debate.
- Recording refined or newly emerging insights in the assessment note.

[1] ONR-INSP-GD-059 'Guidance for Intervention Planning and Reporting' [2] notes that the decision as to which licensees will be reviewed each year should be made by the relevant Delivery Lead in consultation with the LMfS Inspector and the LMfS [sic] Professional Lead.

- Facilitating a discussion on the implications of the newly developed insights on the IIS plan.
- Recording the proposals to modify the IIS plan in the assessment note.
- Ensuring the assessment note undergoes due process and is circulated to key stakeholders.

3.3. HOC Professional Lead

9. The HOC professional lead is responsible for observing a sample of LMfS review meetings for quality management purposes.

4. The LMfS Review Methodology

11. The LMfS review methodology is shown in Figure 1. It comprises three phases which should be applied flexibly, iteratively, and proportionately, as determined by the scale and nature of the operations carried out by the licensee at the site(s) subject to the review. The LMfS review may be undertaken at the end of the reporting period as a discrete activity, or progressively throughout the year, perhaps quarterly, culminating in a final review at year end.

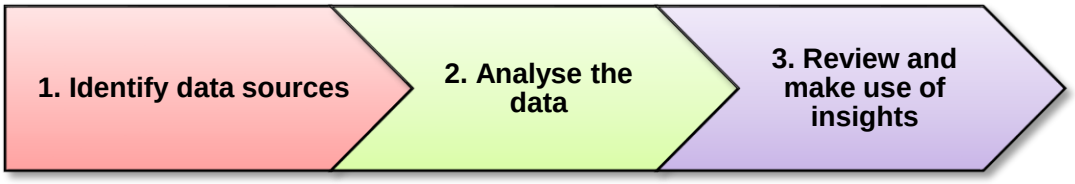

Figure 1: The LMfS review methodology

4.1. Phase One: Identify Data Sources

12. The aim of this phase is to identify sources of data for subsequent analysis. This should include data from a broad range of ONR interventions and interactions with the licensee, not just those concerned primarily with LMfS. The following is a list of examples of sources of primary (licensee generated) and secondary (ONR generated) documentation:

Primary documentation

- Safety culture, safety climate and employee engagement survey results or assessment reports.
- INF1 reports.
- Operational experience and feedback reports.
- Safety performance indicator reports.
- Annual review of safety reports.
- Internal regulator reports.
- LMfS self-assessments / reviews.
- Periodic safety reviews.

Secondary documentation

- Previous LMfS reviews.
- Intervention records.
- Contact records.
- Documentation generated for permissioning purposes (e.g., project assessment reports / decision records).
- Board governance intervention reports.
- Safety culture assessment notes.
- Regulatory issues.

13. The data sources should be collated into a document pack and made available to all persons involved in the next phase.

4.2. Phase Two: Analyse the Data

14. The aim of this phase is to analyse the data sources to develop insights into how a licensee's leadership and management approaches affects nuclear safety outcomes. The LMfS inspector assigned to the division will normally lead the data analysis.

15. A simplified application of the data analysis methods outlined in TD-HOC-GD-001: 'Examining Culture in Organisations: Guidance on Using Qualitative Methods in Organisational Research' [4] is sufficient for this context. This involves:

- Using a template of *a priori* themes based upon the LMfS SAPs.
- Data immersion.
- Coding the data.
- Grouping the coded data to each of the *a priori* themes.
- Drawing insights from the data grouped under each theme.

Key point: Prior to commencing the data analysis, the LMfS inspector should re-familiarise themselves with the guidance on data analysis methods outlined in TD-HOC-GD-001 [4].

4.2.1. Preparing the Template

16. The first step is to prepare a template of *a priori* themes to which the coded data can be subsequently grouped. The *a priori* themes selected will be determined by the scope of the LMfS review. For example, if all four LMfS SAPs are to be explored then the *a priori* themes and their subordinate categories shown in the template below should be used.

MS.1 Leadership 1.1 Leadership attributes. 1.2 Organisational engagement. 1.3 Management systems. 1.4 Governance and oversight. **MS.2 Capable Organisation** 2.1 Organisational structures and resources. 2.2 Core safety capability. 2.3 Control of organisational change. 2.4 Competence management. 2.5 Knowledge management.	**MS.3 Decision Making** 3.1 Decision making processes. 3.2 Challenge and questioning. 3.3 Safety performance indicators. **MS.4 Learning** 4.1 Learning culture. 4.2 Learning processes.

Figure 2: The LMfS review template

17. If the scope of the LMfS review is targeted at a smaller number of SAPs, perhaps just one or two, then the *a priori* themes (SAPs) outside of the scope of the review should be omitted from the template.

18. If during the analysis a theme is identified which is outside the scope of the LMfS review, but which may provide valuable insights into one or more of ONR's purposes, then the theme and its supporting evidence should be recorded and addressed separately to the LMfS review.

19. Further guidance on the four LMfS SAPs, their subordinate categories and desired LMfS outcomes can be found at Appendix A.

4.2.2. Data Immersion

20. The next step is to immerse oneself in the data set to get a sense of the whole. This involves reading and re-reading all the documentation in the pre-prepared packs. By doing this the inspector(s) begin to make connections between discrete data sources and develop ideas about the nature of the areas being explored.

4.2.3. Coding the Data

21. The next step is to code the data. A code is a descriptive label that is assigned to segments of text: a single word, a phrase, or a whole paragraph. The aim of coding is to tag and sort the data. Coding can be carried out by making notes in margins, using different colour highlighter pens, or even cutting out segments of text and attaching to post-it-notes which display the assigned code.

22. The simplest approach to coding is to use the template's category headings as the codes: this provides for a highly efficient albeit less sophisticated way of preparing the data for subsequent grouping under each category. A more sophisticated approach is to actively engage with the data. This involves developing codes by making and recording reflective remarks on the meaning of what has been documented, identifying any doubts about the quality or validity of the data, considering ideas for how the codes may relate to other parts of the data, and noting what is surprising about the data. When coding it is important to consider which things are occurring most often as this can help to confirm ideas. It is also helpful to search for evidence which may counter ideas and sources of data. The approach to coding the data should be based upon the quality of insight required and the time available to the inspector(s) to undertake the analysis. Inspectors may find that familiarising themselves with the LMfS desired outcomes listed at Appendix A to be of help when developing codes.

4.2.4. Grouping the Data

23. The next step is to group the data under each of the template's categories. This involves grouping words, phrases, and segments of text to the hierarchical structure of the template. Once this has been completed the inspector(s) will have a rich body of data structured on the four LMfS SAPs and their subordinate categories.

4.2.5. Drawing Insights from the Data

24. The final step of data analysis is to make sense of the grouped data: to describe each theme and its subordinate categories to draw insights. This is often achieved by explaining the story within the data to establish meaning. The story should tell the performance of the licensee in respect of each of the LMfS SAPs, for example the strengths, underlying problems, and areas where improvements may be necessary and why. These insights should be documented using an assessment note template in preparation for the next phase of the LMfS review. The typical contents of an assessment note are shown at Appendix B.

25. Prior to embarking upon the next phase, the LMfS inspector may want to hold several one-to-one meetings with key divisional personnel such as the site inspector(s) and delivery lead, at which the insights can be shared and debated. This often leads to new insights being identified or additional context given to existing insights which provides for a deeper understanding of an area of focus. Refined or newly emerging insights should be recorded in the draft assessment note which should be added to the document pack and made available to all persons involved in the next phase.

4.3. Phase Three: Review and Make Use of Insights

26. The aim of this phase is to share the insights with ONR inspectors assigned to the licensee and site(s) for which the LMfS review is being conducted, to enable them to:

- Contribute to the analysis.
- Develop a deeper and common understanding of the insights.
- Make recommendations for the development and resourcing of future intervention plans.

27. This requires the LMfS inspector to plan and facilitate a formal LMfS review meeting, typically lasting for half a day to one full day. The steps include:

- Identifying participants.
- Developing an agenda.

- Exploring insights.
- Revising the IIS plan.

4.3.1. Identifying Participants

28. The first step is to identify meeting participants. Invitees will depend upon the scale and nature of the operations carried out by the licensee at the site(s) subject of the review, for example, for a multi-site operating reactor licensee or for a site in enhanced attention, invites may typically be extended to:

- The corporate inspector (where one is appointed).
- The site inspectors(s).
- The delivery lead.
- Specialist inspectors engaged on relevant key projects during the period which the review covers.
- Defence Nuclear Safety Regulator inspectors (where appropriate).

29. An invite should also be sent to the Human and Organisational Capability professional lead who may wish to observe the LMfS review meeting for quality management purposes.

4.3.2. Developing an Agenda

30. The next step is to develop an agenda for the LMfS review meeting. A typical agenda may include:

1. Introduction, purpose, and scope.
2. An overview of the LMfS review methodology as outlined in this guide, including a justification for why any deviation from the method has been made.
3. An explanation of the rationale for why data sources were selected for review, why others were omitted, and an overview of how the data was coded and subsequently analysed.
4. **Exploring insights**: a presentation and debate on the insights from the data analysis for each of the four LMfS SAPs.
5. **Identify potential changes to the IIS plan**: proposals to refine, delete from, or add to the IIS plan.

31. Agenda items four and five should account for the main effort of the LMfS review meeting. These two agenda items are described more fully below.

4.3.3. Exploring Insights

32. This step involves exploring insights with the participants. The LMfS inspector normally leads the presentation of the insights and then follows by facilitating a debate. The inspector(s) involved in the earlier data analysis carried out in preparation for the LMfS review meeting should remain open to their analysis being challenged by those in attendance as this often leads to new or deeper insights being formed. Refined or newly emerging insights should be recorded in the draft assessment note.

4.3.4. Identify Potential Changes to the IIS Plan

33. The next step is to consider the implications of the newly developed insights on the development of the IIS plan. This may result in proposals to refine, delete from, or add to the IIS plan. These proposals should be recorded in the draft assessment note.

34. Once the assessment note has undergone due process, it should be made available as a key input to the IIS planning process as described in ONR-INSP-GD-059 ‘Guidance for Intervention Planning and Reporting’ [2]. It may also be used to inform the assessment of dutyholder attention levels which is to be carried out in accordance with ONR-GEN-GD-013 ‘Guidance on the Assignment of Dutyholder Attention Levels’ [3].

35. The LMfS review may now be concluded.

References

[1] ONR, “Safety Assessment Principles (SAPs) (2019/367414)”.

[2] ONR, “ONR-INSP-GD-059 - Guidance for intervention planning and reporting (2020/158068)”.

[3] ONR, “ONR-GEN-GD-013 - Guidance on the assignment on dutyholder attention levels (2018/197125)”.

[4] ONR, “TD-HOC-GD-001 - Examining Culture in Organisations: Guidance on Using Qualitative Methods in Organisational Research”.

Appendix A – LMfS Desired Outcomes

SAP	Outcome
MS.1: Leadership	
Leadership attributes	• Leaders have established an organisational approach to safety which stipulates that, as an overriding priority, issues relating to nuclear safety receive the attention warranted by their significance. • The strategic importance of nuclear safety is reflected in business policies and plans, communications and decision making. • Ownership for nuclear safety is clearly defined and understood. • Behavioural expectations have been set. • Reward systems promote the identification and management of risk, encourage safe behaviour and discourage unsafe behaviours and complacency. • Nuclear safety implications are considered in change management processes. • Suppliers and contractors whose operations may have a bearing on the safety of the nuclear facility have appropriate arrangements to demonstrate, support and promote attitudes and behaviours that result in an enduring and strong safety culture. • The management of safety is participative, actively drawing on the knowledge and experience of all staff. • Regular assessments of leadership for safety and of safety culture are undertaken.
Organisational engagement	• Leaders actively ensure that staff in their team are familiar with nuclear safety and see it as important in relation to other priorities. • Leaders promote interest in and ownership of nuclear safety, i.e., staff feel they have a say and a stake - not something that is just done to them as passive and reluctant parties. • Leaders talk regularly and constructively about nuclear safety, respond to concerns and give feedback or act where needed on the performance of team members. • Leaders ensure an open reporting culture.
Management systems	• The management system of the licensee controls all processes and activities that impact upon nuclear safety and it ensures that safety requirements are met. • The management system ensures that due consideration of nuclear safety is integral to ‘normal’ business activity. • The management system is graded and efficient so that attention and resources are targeted where needed and is to a recognised quality management standard. • Auditing is effective, well-resourced, and well-targeted. • Non-conformances are dealt with seriously and root causes addressed as appropriate. • The overall management system and all processes are robustly reviewed and continually improved.

SAP	Outcome
Governance and oversight	The Board of the licensee: • Provides strategic direction and leadership. • Is effective at holding licensee senior management to account. • Has appropriate competence and membership. • Has clear roles and responsibilities, collectively and individually. • Receives good quality information on nuclear safety, and members have a 'direct line of sight'. • Targets its discussions well. • Is questioning and challenging.
MS.2: Capable Organisation	
Organisational structure and resources	• There are sufficient resources to maintain adequate nuclear safety standards. • Vulnerabilities are known and resilience is managed (e.g., through succession plans). • There is a current nuclear baseline that meets accepted good practice. • There is effective senior management ownership and oversight of nuclear capability.
Core safety capability	• Core safety capability is understood and managed. • The licensee has processes that identify and secure its core capability including adequate staffing and expertise for Design Authority (DA) and intelligent customer (IC) needs. • The licensee demonstrates it is in effective control of nuclear safety and the requirements of the safety case (i.e., is an IC) for all contracted work, including specifying, supervising, and reviewing output as necessary. • A DA ensures that the design integrity and overall basis for safety of licensee plant and facilities are maintained throughout the full lifecycle, including modifications, changes to operations or requirements and ageing. • The DA is independent of operations and has sufficient authority for its purpose.
Control of organisational change	• Organisational changes are assessed, planned, and implemented in a manner that takes a conservative view of potential impacts on nuclear safety. • Organisational changes are categorised correctly, and salami-slicing is avoided. • The risk assessment and implementation plan for organisational changes are suitable and sufficient. • The use of a phased approach to organisational changes is appropriate.

SAP	Outcome
Competence management	• The licensee has identified and prepared a role profile or similar for all nuclear safety related posts, roles, and responsibilities. • There are clear standards of competence for these roles and responsibilities, and clear means for determining whether individuals have those competences. • Training and education is provided that ensures staff are competent and have adequate underpinning knowledge of nuclear hazards and the safety case for their responsibilities and working environment. • Training includes managerial and leadership skills as appropriate. • Training is designed by people with the competence to do so. • Training is refreshed and updated as needed.
Knowledge management	• There is a system which ensures knowledge is captured and communicated within the organisation in a systematic, appropriate and reliable manner to all those who need to make safety decisions. • Knowledge is recognised as a strategic asset. • The role of knowledge management in managing nuclear safety is understood. • The organisation employs a range of techniques to ensure that knowledge valuable for nuclear safety is captured and retained. • Significant events in the history of the organisation are well-documented, understood and periodically re-visited (through briefs, seminars and toolbox talks) to ensure that the lessons from them are retained in the corporate memory.
MS.3: Decision Making	
Decision making processes	• There is an organisational approach to safety which stipulates that, as an overriding priority, issues relating to nuclear safety receive the attention warranted by their significance. • The strategic importance of nuclear safety is reflected in business policies and plans, communications, and decision-making. • Decision making is evidence-based. • Decision making is based on processes which ensure that conflicts between safety and other business goals are recognised and appropriately resolved. • Decisions cater for the potential for error, uncertainty and the unexpected. • Decisions taken in the face of uncertainty or the unexpected are appropriately and demonstrably conservative.

SAP	Outcome
Challenge and questioning	• There is a culture that invites and encourages challenge in relation to safety. • Independent challenge occurs effectively and by design for all key decisions, including at Board level. • Decisions at all levels are transparent, rational, and prudent, and give nuclear safety a high priority. • The Nuclear Safety Committee is robust, enquiring, and gives good advice where needed. • There is an internal regulation function that is adequately and competently resourced, given due respect, and which has an appropriate programme of activities. • The internal challenge function enables the licensee to understand how others would see it.
Safety performance indicators	• Safety performance indicators (SPIs) are used at all levels within the organisation to monitor nuclear safety performance. • SPIs have been developed which monitor the controls identified in the safety case(s), providing assurance that risks control systems are always operating effectively. • SPIs are in place that can provide early indications of danger. • SPIs are monitored routinely by the licensee's top management. • SPIs include leading indicators (predicators of future performance) as well as lagging indicators (evidence of past performance); • The organisation understands that not all SPIs have the same value, and that operational indicators (those linked to operating rules, safety mechanisms etc.) have a greater value and prominence than generic and programmatic indicators (number of people trained, audits completed to an agreed timescale etc.).
MS.4: Learning	
Learning culture	• Staff at all levels are encouraged to look for learning opportunities and improvements. • All areas (e.g., Board, facilities, projects) show a 'pull' for learning information and can explain what they have learnt. • Leaders foster openness and trust, and show learning themselves. • Changes are based on an understanding of why problems exist.
Learning processes	• The licensee shows real and broad learning from experience. • Active and diverse means are used to seek out learning, including external. • Learning and indicators are used to inform a clear, objective view of nuclear safety performance.

Appendix B – Typical Assessment Note Contents

Assessment Note	
Record Ref:	*Insert record reference here (YYYY/NNNNN)*
Licensee:	*Insert licensee name here*
Site:	*Insert name of sites within scope of review here*
Title:	Leadership and Management for Safety Review

Document Acceptance

Role	Name	Position	Signature	Date
Author			*This will normally be a LMfS specialist inspector*	
Peer Review			*Note. The decision on whether a peer review is required should be reached in consultation with the Professional Lead.*	
Acceptance Review			*Note. Acceptance review is required for all assessments which provides key support to regulatory decisions; the acceptance reviewer for LMfS reviews is the HOC professional lead.*	

Revision History

Issue No.	Date	Author(s)	Reviewed By	Accepted By	Description of Change
1					

Circulation (latest issue)

Organisation	Name

Executive Summary

The *executive summary* is a brief account of the LMfS review. If the assessment note is written succinctly, an executive summary may not be necessary.

Introduction and aim

The *introduction* provides information on why the LMfS review has been commissioned and what it sets out to achieve. This section should also provide a very brief introduction to the licensee and the site(s) within the scope of the review.

Methodology

The *methodology* should be outlined here. This should be a brief statement describing how the methodology described in this guide has been enacted. It should:

- Explain the rationale for why data sources were selected for review and why others were omitted. The data sources should either be listed in this section or in an appendix.
- Include a description of how the data was coded and subsequently analysed, and who was involved in this.
- Provide details of any meetings held with key divisional personnel to explore the insights prior to the LMfS review meeting.
- Provide details of how the LMfS review meeting was conducted, along with a list of attendees and a justification for why they were invited to attend.
- Describe how the insights were used to develop proposals to refine, delete from, or add to the IIS plan.

Also include a justification for any deviations from the methods outlined in this guide.

Insights

The *insights* should be outlined here. This is the main body of the report and it should ‘tell the story’ of the licensee’s performance in respect of each of the LMfS SAPs being explored, for example:

- What are the strengths in the licensee’s approaches and why? What evidence supports this?
- What progress has the licensee made during the year and what have been the key factors which have contributed to this? What evidence supports this?
- What are the underlying problems in the licensee’s approaches and why? What evidence supports this?

- What has the licensee failed to improve upon during the year and what have been the key factors which have contributed to this? What evidence supports this?
- What improvements in the year ahead may be necessary and how should these be prioritised? What evidence supports this?
- Do the licensee's approaches to leadership and management pose any unacceptable risks to nuclear outcomes that may require timely intervention? What evidence supports this?
- What best practices have been identified which may be of benefit to the safe operations of other licensees? What evidence supports this?

Recommended changes to IIS plan

The *recommended changes to the IIS plan* should be outlined here. This may be a combination of proposals to refine, delete from, or add to the IIS plan.

References and appendices

A list of *references* and any *appendices* should be included at the end of the document.