

LLW Management Peer Review Model



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GLOSSARY

Term	Definition
BAT	Best Available Technique
BPM	Best Practicable Means
Characterisation	Characterisation is the process by which the physical, chemical and radiochemical properties of a waste are determined. The process of characterisation includes a number of different activities including planning, sampling, measurement, laboratory analysis, data / activity assessment and reporting. Different waste producers may have differing approaches to characterisation.
Forecasting	Forecasting is the process by which future projections on the volume, type, classification and routing of radioactive waste is made.
Inventory management	Inventory management is the process by which data and information relating to the radioactive waste at a project, plant, site or organisation level is captured, consolidated, stored, changed and reported.
ILW	Intermediate Level Waste
IWS	Integrated Waste Strategy
JWMP	Joint Waste Management Plan
LA-LLW	Low-Activity Low Level Waste
LFE	Learning from Experience
LLW	Low Level Waste
OU	Operating unit (aka business unit / department)
R&D	Research and Development
SLC	Site Licence Company (organisations within the NDA estate which carry nuclear site licences)
SMART	An inventory analysis and development process, developed by Magnox Ltd, which involves re-estimating waste inventory through a combination of techniques including visual walk downs of all accessible areas of plant and remote assessment of inaccessible areas.
SQEP	Suitably Qualified and Experienced Person
UK	United Kingdom
UKRWI	UK Radioactive Waste Inventory
VLLW	Very Low Level Waste
WAC	Waste Acceptance Criteria
WCH	Waste Characterisation Document (this is an LLW Repository Ltd document but could refer, in the context of characterisation, to any characterisation document pertaining to LLW).
WH	Waste Hierarchy
WIF	Waste Information Form

Background and Context

What is the purpose of this model?

This document provides the framework for understanding and undertaking a LLW management Peer Review, and explains how this can be used to assist waste generators in benchmarking and ultimately improving their Low Level Waste (LLW) management practice. This document provides a definition for Peer Review, describing the benefits and details of the Peer Review process. It is intended that this document is a source of information for waste generators seeking to be involved in the Peer Review process and for other stakeholders who are interested in the nature of LLW management Peer Reviews.

What is LLW management culture?

The Peer Assist process is intended to support the identification, implementation and embedding of improvements to LLW management culture across the UK.



LLW management culture describes the approach employed by a organisation involved in LLW management (on any scale from an individual project to a whole organisation) for the management of LLW. This covers all aspects of LLW management (people, plant, processes and policies) for the full lifecycle of the waste from characterisation to disposal.

Why is LLW management culture important?

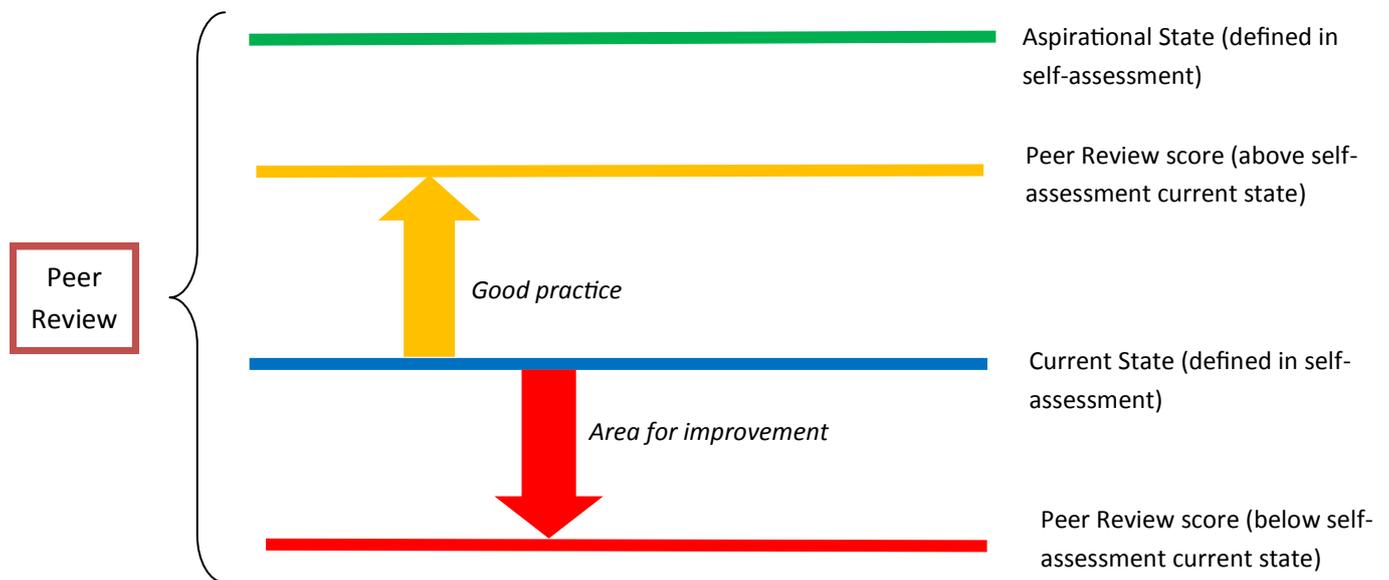
For organisations that manage LLW, its safe and effective management is a key concern. Managing LLW through its lifecycle from retrieval to disposal requires the coordination of effort from a range of personnel, plant and processes to ensure that LLW management is conducted safely, efficiently and successfully. Historically, the default waste management option for management of LLW is disposal at the national LLW Repository (LLWR) in West Cumbria. It has been recognised in Government Policy and Strategy that unless there was a change in this behaviour, the disposal capacity at LLWR will be exceeded before completion of decommissioning of the civil nuclear industry, requiring the construction of a second facility.

The significance of a positive LLW management culture is that it ensures that the right decisions can be made and can be implemented so as to reduce the volume of waste disposed of at the LLWR, to reduce the environmental impact of waste management activities and to deliver cost savings through the use of more joined up and efficient waste management practices.

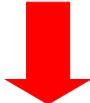
LLW Management Culture can be described by a holistic model (this model) that considers all of the attributes that contribute to safe, efficient and successful LLW management.

What is a Peer Review?

A **Peer Review** is a benchmarking tool that enables anyone involved in LLW management to gain an independent view of their LLW management culture. This benchmarking is undertaken against a model of best practice (excellence) in LLW management.



Key components of the Peer Review

-  **Current state**—where the waste generator is now in terms of LLW management practice / culture. This is measured by the waste generator through the self-assessment process.
-  **Aspirational state**—where the waste generator wants to be in terms of LLW management practice / culture. This is measured by the waste generator through the self-assessment process.
-  **Peer Review score (above current state)**—this is the independent measure of the specific aspect of waste management culture measured by the peer review cohort during the peer review, where the score exceeds the current state score.
-  **Peer Review score (below current state)**—this is the independent measure of the specific aspect of waste management culture measured by the peer review cohort during the peer review, where the score exceeds the current state score.
-  **Good practice**—this is an aspect of the waste management arrangements delivered by the waste generator which exceeds the current state score and which may have benefit to other waste producers. This is a positive aspect of the waste management culture.
-  **Area for improvement**—this is an aspect of the waste management arrangements delivered by the waste generator where improvement is needed to meet the aspirational score.
-  **Process**—the peer review process incorporating self-assessment, independent scoring against the peer review model and reporting.

What is the difference between a Peer Review and a Peer Assist?

A **Peer Review** is a benchmarking tool that enables anyone involved in LLW management to gain an independent measurement of their LLW management practice against best practice.

A **Peer Assist** is a problem-solving tool that enables anyone involved in LLW management to identify and implement improvements to their LLW management practice and culture.

The Peer Review and Peer Assist are standalone tools, directed at benchmarking and problem-solving respectively. Both tools can be scaled depending on the needs of the host. The Peer Review is conducted using a specific process (defined in this model—albeit this can be tailored in size and scope) whereas the Peer Assist process can be tailored to the needs of the host and the nature of the improvement need. Both are complementary to each other, and a Peer Review may be an input or initiator to a Peer Assist.

What aspects of LLW management practice does Peer Review support?

Any and all aspects of LLW management practice, across the LLW lifecycle.

Characterisation	Engagement
Inventory Management	Learning from Experience
Packaging and Transport	People and people organisation
Policies, strategies and procedures	Training and qualification
Waste consignment	Waste Hierarchy
Waste management operations	Waste route availability and decision making

When would I use a Peer Review?

Peer Reviews may prove particularly useful to organisations managing LLW when:

- Such organisations want an independent measure / benchmark of aspects of their LLW management practice
- It has been identified that improvements could be made; and such organisations want information on where to target improvement efforts

Structure of the Peer Review Model

The Peer Review Model is structured into three main sections:

- **Peer Review Process**—this section summarises the process involved in undertaking a peer review; providing an overview of the process, key documents and roles / responsibilities for those involved.
- **LLW Management Best Practice**—this section describes the characteristics of an organisation that manages LLW that would demonstrate best practice in the management of LLW. This is provided as an overview, which is then detailed in specific descriptions (e.g. on characterisation, waste management operations) for the different aspects of LLW management practice detailed above.
- **Scoring Matrix**—this section provides a detailed scoring matrix which is utilised in the Peer Review process.

What are the benefits of undertaking a Peer Review?



Principles of the Peer Review process

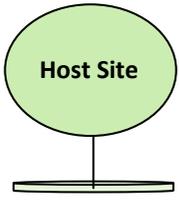


Peer Review Process

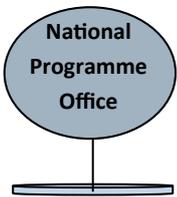
Peer Review Process Flowchart



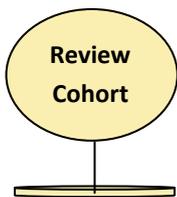
Roles and Responsibilities



- Responsible for:
- To develop and agree the scope for the Peer Review with the National Programme Office.
 - To develop a timetable for the Peer Review, in conjunction with the National Programme Office, involving organising plant visits and meetings with key personnel.
 - To complete the self-assessment.
 - To issue / disseminate communications relating to the peer review to key personnel.
 - To attend the Opening Meeting and Hot Feedback meeting.
 - To organise the logistics for the review on-site (i.e. coordinate site access, organise meeting room(s) and lunch).
 - To participate in the peer review observation phase by providing documentation, facilitating plant visits and participating in interviews / discussions.
 - To fact check the peer review report.
 - To consider the peer review report and develop a plan to implement any actions arising from it as appropriate for the site.



- Responsible for:
- To develop and agree the scope for the Peer Review with the Host Site.
 - To develop a Statement of Needs for the Peer Review and work with the Host Site to enable the development of a timetable.
 - To issue communications to key representatives from the Host Site and the Peer Review cohort.
 - To provide training for the peer review cohort on the Peer Review methodology.
 - To organise the logistics of the evening meetings for the peer review cohort.
 - To lead the Peer Review observations phase.
 - To chair the Opening Meeting and the Hot Feedback meeting.
 - To chair the evening Peer Review Cohort meetings and the scoring session.
 - To produce the peer review report.
 - To provide post-review feedback and information to the Host Site.
 - To monitor the efficacy and success of the peer review programme, including providing feedback to the Programme Board.
 - To produce and manage the good practice summaries.
 - To act as an information hub relating to the peer review programme.



- Responsible for:
- To attend and participate in the peer review training provided by the National Programme Office.
 - To familiarise themselves with the Peer Review Model, scoring framework, host site self-assessment and communications from the National Programme Office ahead of the peer review.
 - To organise their own travel and subsistence arrangements for the peer review.
 - To fully participate in the peer review observation and scoring process.
 - To attend all necessary meetings during the peer review observation process.
 - To act with professionalism and discretion during peer review observations.
 - To present good practices and / or areas for improvement at the Hot Feedback meeting.
 - To review and provide comments on the Peer Review report.

Peer Review Process—Before the Peer Review

Scoping

An organisation that manages LLW (the host organisation) identifies a need or desire to undertake a Peer Review by contacting the National Programme Office (via email to NWP@llwrsite.com). The National Programme Office will work with the host organisation to define the scope of the Peer Review by identifying the objectives, as well as the area(s) of the host organisations business and the area(s) of the peer review model to be included in the review. At this stage, logistical activities such as defining a schedule for the review will also be undertaken. A scope document (NWP/FOR/003) is produced following these discussions and is formally approved by the waste producer (the host site) and the National Programme Office.

Identifying and training the peer review cohort

The National Programme Office will work with other LLW management organisations within the UK Nuclear Industry to identify a suitable cohort to participate in the peer review. This cohort will attend training—facilitated by the National Programme Office—on the peer review process prior to participating in the review.

Logistical arrangements

Logistical arrangements for the review will be undertaken by both the host site and the National Programme Office as required.

For the host site, this includes (but is not limited to):

- Identifying what security and dosimetry paperwork is required
- Organising an on-site base for the peer review cohort
- Identifying attendees for the opening up and closing meetings
- Organising catering (lunch) for the peer review cohort
- Advising the National Programme Office of any special requirements such as PPE

For the National Programme Office, this includes (but is not limited to):

- Coordinating the completion of security and dosimetry paperwork
- Advising the peer review cohort of any special requirements such as PPE
- Identifying and securing a location for evening work
- Issuing invitations for the opening and hot feedback meetings

Review specific arrangements

The National Programme Office will produce a statement of needs (NWP/FOR/004), which will be provided to the host site in advance of the peer review. This will specify the needs for the peer review activities—what plant visits / walkdowns will be undertaken, what documentary evidence will be looked at and which people the peer reviewers will wish to hold discussions with. This will enable the host to undertake necessary preparations and to develop a timetable for the visit.

Briefing

Briefing information in the form of a toolbox talk and set of presentation slides will be provided to the host site by the National Programme Office prior to the peer review, to enable briefing of personnel at the host site.

Self-assessment

The self-assessment process enables the Host Site to review their LLW management culture against the model to determine both their **current score** (where the host site believes it is operating at for each relevant aspect of the model) and an **aspirational score** (where the host site wants to be operating at for each relevant aspect of the model). The host site completes the self-assessment (NWP/FOR/005) prior to the peer review and provides the completed form to the National Programme Office. This information is fed to the peer review cohort ahead of the peer review to provide background information and context.

Peer Review Scope Template (NWP/FOR/003)

PURPOSE

To clearly define the scope and extent of the peer review in terms of the areas of the host organisation and the elements of the peer review model that will be assessed during the peer review. This scope forms the basis of the planning for the peer review process; and is produced by the National Programme Office in conjunction with the host site.

National Waste Programme			
LLW MANAGEMENT PEER REVIEW PROGRAMME PEER REVIEW SCOPE DOCUMENT			
ORGANISATION:	FACILITY / SITE:	1
PEER REVIEW DATE:			
PEER REVIEW OBJECTIVES			
<ul style="list-style-type: none"> To assist and support LLW consignors in the identification and implementation of opportunities to optimise LLW management practices. To identify and disseminate information on LLW management practices to the wider LLW management community. 			
AREA(S) TO BE PEER REVIEWED			
3			
ELEMENTS OF PEER REVIEW MODEL TO BE CONSIDERED DURING REVIEW			
4			
PEER REVIEW APPROACH			
<ul style="list-style-type: none"> Review of documentation. Plant / site walkdowns. Interviews / discussions with relevant staff. 			
PEER REVIEW ASSESSOR COHORT			
6			
APPROVAL			
Name:	7	Signature:	Date:
Name:		Signature:	Date:

- 1 Basic information about the peer review – organisation, facility / site and peer review date.
- 2 Statement of the objectives of the peer review process.
- 3 Specification of the area(s) of the site that are included in the scope of the peer review. This can refer to the entire site or to a list of specific plants or plant areas.
- 4 Specification of the elements of the peer review model that will be considered / assessed during the peer review.
- 5 Summary of the general approach to undertaking a peer review.
- 6 Details of the peer review assessor cohort taking part in the peer review.
- 7 Evidence of approval of the peer review scope document by the National Programme Office and the Host Site.

Peer Review Statement of Needs Template (NWP/FOR/004)

PURPOSE

To clearly define the needs of the peer review assessor cohort in terms of the plant areas to be visited, the personnel / subject areas to be involved in interviews / discussions and the documentary evidence to be reviewed. This document is produced by the National Programme Office to enable the host site to organise the timetable and on-site logistics for the peer review.

The image shows a template for a 'Peer Review Plan Document' under the 'LLW Management Peer Review Programme'. The document is divided into several sections, each with a numbered callout (1-6) indicating key information points:

- 1:** A table at the top for 'ORGANISATION', 'FACILITY / SITE', and 'PEER REVIEW DATE'.
- 2:** The 'PEER REVIEW OBJECTIVES' section, which includes bullet points about assisting LLW consignors and disseminating information.
- 3:** The 'PLANT VISITS' section, describing a site walk-down and listing plants to be visited.
- 4:** The 'INTERVIEWS / DISCUSSIONS' section, detailing the scope of interviews and meetings.
- 5:** The 'DOCUMENTS OF INTEREST' section, listing documentation to be reviewed.
- 6:** The 'PEER REVIEW ASSESSOR COHORT' section, which is currently blank.

At the bottom of the form, there are logos for 'Inventory Site Restoration Ltd', 'LLW Repository Ltd', 'Magnox', 'Sellafield Ltd', 'Research One', and 'NDL'.

- 1 Basic information about the peer review – organisation, facility / site and peer review date.
- 2 Statement of the objectives of the peer review process.
- 3 Specification of the plant visits to be included in the peer review based on the scope document. This details the plants or plant areas to be visited during the review.
- 4 Specification of personnel or subject areas to be included in interviews or discussions during the peer review.
- 5 Specification of the documentation to be reviewed during the peer review.
- 6 Details of the peer review assessor cohort taking part in the peer review.

Peer Review Self-Assessment Template (NWP/FOR/005)

PURPOSE

To define and describe the host organisations view of their current state and aspirational state for LLW management in the context of the scoring matrix. This is used as background information by the peer review assessor cohort and to inform the report.

- 1 Basic information about the peer review – organisation, facility / site and peer review date.
- 2 A description of the plant / facility / site is provided here. This could include some basic history and a summary of the activities that are undertaken on the plant / site today.
- 3 A summary of the strategic (corporate) objectives of the organisation is provided here. This should indicate what the key priorities for the plant / facility / site are to provide context and background for the peer review cohort.
- 4 Instructions on how to undertake the self-assessment scoring process.
- 5 Indicates the current state score per element (or N/A if the element is not included in the scope of the peer review).
- 6 Provides commentary on the scores provided – such as key pieces of evidence that support the scoring.
- 7 Indicates the current state total score for the plant / facility / site.
- 8 Indicates the aspirational state score per element (or N/A if the element is not included in the scope of the peer review).
- 9 Provides commentary on the scores provided – such as key pieces of evidence that support the scoring.
- 10 Indicates the aspirational state total score for the plant / facility / site.

Peer Review Process—During the Peer Review

Opening Meeting

An opening meeting is held between the peer review cohort and representatives from the host at the start of the peer review observations process. This enables introductions between the groups, enables the host site to provide an introduction to the history and context of the site / projects operations, and enables the peer review cohort to communicate the purpose / scope of the review.

Observations

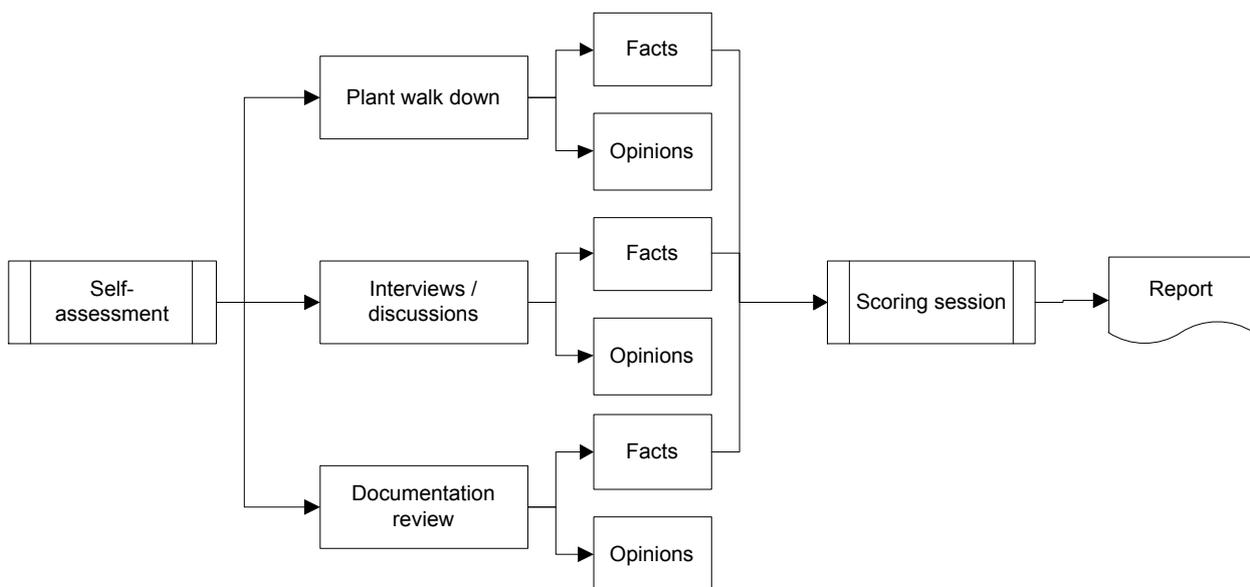
During the peer review process, the peer review cohort participates in a mixture of plant walk downs, interviews / discussions with key personnel and reviews of documentary evidence. The cohort takes notes during this process to record the evidence found. The evidence may be facts or opinions – both are recorded but are clearly differentiated so that only facts are considered in the scoring. The evidence collected will provide underpinning for the scoring element of the review and will be used in the final report.

Evidence can be defined as the available body of facts or information indicating whether a belief or proposition is true or valid. This may include facts and opinions.

A **fact** is something which is known to exist or has happened; and is known to exist from actual experience or observation.

An **opinion** is a belief or judgement that rests on grounds insufficient to produce complete certainty; a personal view, attitude or appraisal.

Scoring



The scoring session is used to collate and review each and every piece of evidence gathered during the peer review process, and to use the evidence and the scoring matrix to derive a set of scores for the host sites' current state. These are agreed through a consensus process. The difference between this score and the sites aspirational score is used to identify good practices (which can be shared with the wider UK LLW management community) and areas for improvement; to support the host site in reaching its aspirational state for LLW management culture. These are shared with the host site through the Hot Feedback session and Peer Review report.

Hot Feedback Meeting

This meeting is held to complete the peer review observation process, and is held between the peer review cohort and representatives from the host. At this meeting, the peer review cohort will provide a high-level overview of their findings and will detail the good practices / areas for improvement identified during the peer review. This meeting provides an opportunity for the host site to gain clarification from the peer review cohort on their findings.

Peer Review Process—After the Peer Review

Report

The National Programme Office produces the peer review report (NWP/FOR/006) using the observations and output from the peer review process. This is subject to review by the peer review cohort prior to submission—in draft form—to the host site. The host site has an opportunity to fact check the report; which is updated (if required) by the National Programme Office before final submission to the host site.

Good practice summary

The National Programme Office produces a summary of the good practices observed during the peer review, to enable the good practices to be shared around the industry, and publishes it via the LLWR website www.llwrsite.com or via the Knowledge Hub (as appropriate).

Responding to the report

The host site is free to respond to the peer review report as they wish; for example, formulating an action plan or translating into their JWMP or else taking no action. The host may wish to look in more detail at making specific improvements, and may invoke the Peer Assist process (described in NWP/REP/058 Peer Assist Framework on the LLWR website www.llwrsite.com).

The image shows a peer review report form template. It includes fields for 'ORGANISATION' and 'FACILITY/ SITE'. Below these are sections for 'OVERALL FINDINGS' and 'Information about the peer review'. The form is titled 'LLW MANAGEMENT PEER REVIEW PROGRAMME PEER REVIEW REPORT'.

The image shows a 'LLW MANAGEMENT GOOD PRACTICE SUMMARY' document. It is titled 'FEEDBACK FROM PEER REVIEW PROGRAMME 2013/14'. The document is divided into several sections: 'INTRODUCTION & PURPOSE', 'CHARACTERISATION', 'FACILITIES & TRANSPORT', 'ENGAGEMENT & LIFE', and 'PEOPLE & PEOPLE ORGANISATION'. Each section contains bullet points describing good practices observed during the peer review process.

Measuring Progress and Success

One of the main objectives of the Peer Review process is to enable the improvement of LLW management practice by any organisation involved in LLW management. Progress towards achieving improvement in LLW management practice for such an organisation shall be undertaken through a light-touch re-review in a 12-18 month horizon following completion of the peer review.

The re-review shall be undertaken utilising the same scope / boundaries as defined for the initial peer review and will involve a small peer review cohort (consisting of a team of one to three people, depending on the size and complexity of the initial review). The re-review shall involve discussions with personnel, plant walk downs and reviews of documentary evidence (as required and relevant) to identify:

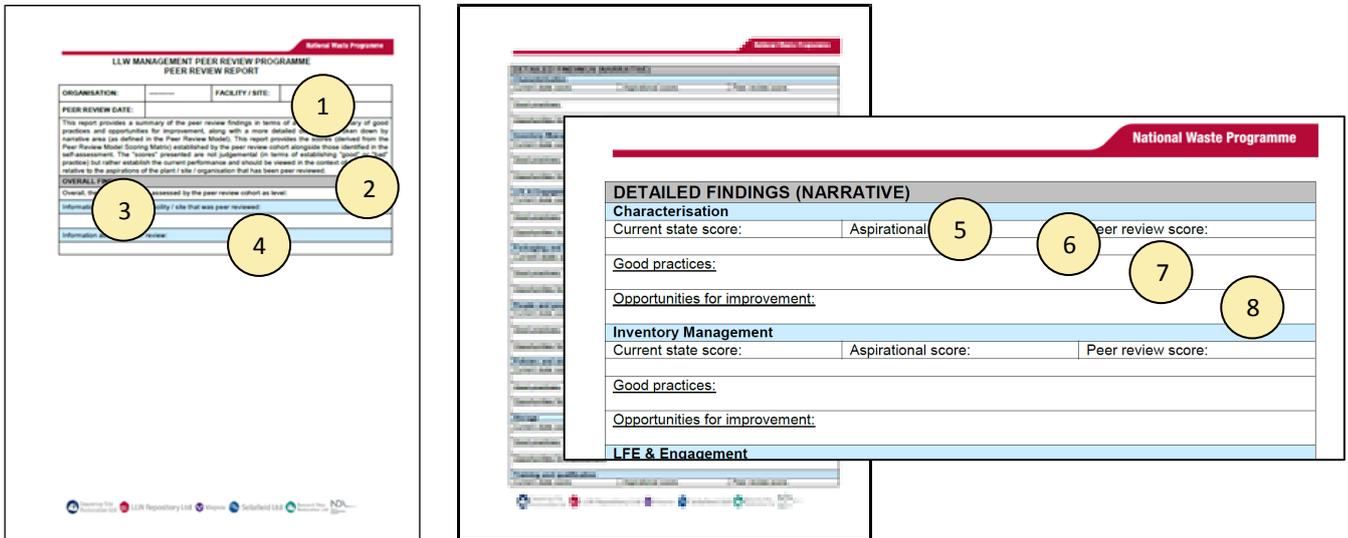
- Progress towards achieving the aspirational score as defined in the self-assessment (or as revised as a result of changing corporate objectives etc.)
- What improvements have been made in LLW management practice and culture
- Any further improvements which could be made to assist the organisation in achieving the aspirational score
- Any good practices which can be shared around the LLW management community

The output of the light touch re-review will be an additional peer review report (NWP/FOR/006) describing the progress that has been made towards achieving the aspirational score and any good practices / areas for improvement identified during the review. In addition, a further good practice summary will be prepared by the National Programme Office as required.

Peer Review Report (NWP/FOR/006)

PURPOSE

To provide the output from the peer review. This includes the scoring on an overall and element-by-element basis, a summary of the underpinning evidence for each element and a list of good practices / areas for improvement pertaining to each element of the model.



- 1 Basic information about the peer review – organisation, facility / site and peer review date.
- 2 Overall peer review score for the plant / facility / site / SLC is provided.
- 3 Generic information about the plant / facility / site / SLC is provided here.
- 4 General information on the peer review – such as the scope of the review, the review participants etc. – is provided in this section.
- 5 The scores from the self-assessment (on an element by element basis) are included in this section along with the specific element score determined during the peer review.
- 6 A summary of the detailed findings (the evidence) collected during the peer review is provided here to provide some underpinning and context to the scores.
- 7 A summary of any good practices observed relating to that specific element is included in this section.
- 8 A summary of any opportunities for improvement observed relating to that specific element is included in this section.

LLW Management Best Practice

Characteristics of best practice LLW management culture

PEOPLE

1. The organisational structure and the role descriptions for roles relating to the management of LLW are defined, are accessible and have been communicated to relevant personnel at all levels of the organisation.
2. Personnel involved in the management of LLW are trained, knowledgeable and competent in relevant and applicable procedures.
3. The priorities and activities of individual personnel and teams involved in LLW management are aligned with corporate goals and objectives for LLW management. Progress in the achievement of these goals is periodically measured. Resources are coordinated to accomplish the corporate strategy and goals for LLW management safely, effectively and reliably.
4. Safe and compliant management of waste is a priority for personnel at all levels of the business. Positive waste management behaviours – i.e. those aligned with the Waste Hierarchy – are reinforced by leaders / managers and the corporate organisation.
5. Leaders / managers have a broad knowledge of LLW management and demonstrate an understanding of corporate policy, strategy, goals and objectives relating to this.

PLANT

1. Infrastructure and equipment for LLW management is configured to enable sorting and segregation of waste at source. Infrastructure and equipment is appropriately calibrated and certification is available. At source sort-and-segregation of waste is routinely undertaken by the site / facility. Sufficient tools, equipment and consumables are available to support the management of LLW across its lifecycle.
2. LLW is stored in a manner that minimises exposure, maintains waste form integrity, precludes deterioration of the waste / packaging and prevents contamination spread. Waste packaging is clearly labelled throughout its lifecycle to enable easy identification of the waste.
3. A suite of standardised packaging – acceptable for storage, transport, treatment and disposal – is available and utilised for the storage, handling, transport, treatment and disposal of LLW. Packaging selection, at the earliest possible phase in the waste form lifecycle, is used to minimise the need for future repackaging. There is access to the full range of waste transport, treatment and disposal routes to support waste diversion from LLWR; and has the necessary physical infrastructure available to use them.
4. Systems and tools provide the right information in the right format at the right time to enable optimised waste management.
5. Volumes of LLW for treatment and / or disposal are aggregated and transferred for treatment / disposal on a fixed, standardised schedule.
6. Waste is characterised proactively and as early in the waste lifecycle as possible.
7. LLW management is delivered in line with the principles of the Waste Hierarchy.

PROCESSES

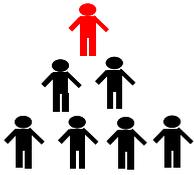
1. A dynamic, near real-time waste inventory management system is operated; supported by routine data reviews. Operation and control of the inventory management system is supported by processes and procedures covering the full data lifecycle.
2. Waste characterisation is embedded in waste management processes and procedures.
3. Waste route optioneering and decision making takes account of all relevant information.
4. Innovation, technology transfer and (where appropriate) R&D is used to support identification of approaches for LLW management as needed.
5. There are defined processes and procedures that cover (as appropriate) the full lifecycle of the waste including retrieval, segregation, handling, packaging, transport, treatment and disposal. Waste management processes align with application of the Waste Hierarchy.
6. Processes are operated for the collation, analysis, investigation, trending and communication of information on LLW management events and learning from experience. There is active participation in benchmarking of their LLW management arrangements and practices.
7. There is open communication and engagement with the workforce, the wider national LLW management community and other stakeholders on matters relating to LLW management.

POLICIES

1. There is a clear and unambiguous vision for how LLW is managed now and in the future, and there is a strategy identifying how this will be achieved. There are clear and unambiguous targets, goals and objectives for LLW management. Personnel at all levels have a demonstrable knowledge of the corporate goals and objectives relating to LLW.
2. There is clear line-of-sight from Government policy and National LLW Strategy to corporate policy / strategy to working level documents.
3. Goals and objectives for LLW management align with those of the National Nuclear Industry LLW Strategy (to minimise the volume of waste dispositioned at LLWR and to maximise the volume of LLW to alternative treatment and disposal routes through application of the Waste Hierarchy).
4. Progress against achievement of corporate goals and objectives for LLW management is routinely tracked and action is taken where deficiencies are identified. Risks and opportunities associated with the management of LLW are identified and managed.
5. There is active and positive engagement with the workforce, the wider LLW management community and stakeholders to share policy, strategy, corporate goals / objectives and progress against these.

Characterisation

DEFINITION - Characterisation is the process by which the physical, chemical and radiochemical properties of a waste are determined. The process of characterisation includes a number of different activities including planning, sampling, measurement, laboratory analysis, data / activity assessment and reporting. Different waste producers may have differing approaches to characterisation.



The organisation recognises the value of timely and appropriate characterisation to the process of LLW management, and this is reflected in the corporate policy / strategy as appropriate. Given the recognition of characterisation as a valuable part of the LLW lifecycle, the organisation has implemented a requirement that characterisation is performed as part of the waste management process. There is recognition at all levels that characterisation is a valuable part of the LLW management lifecycle.

Access to characterisation services

The organisation has access to characterisation services for LLW (which may be on-site, supply chain, via LLWR or a combination of these) that enable radiochemical, chemical and physical characterisation of waste. The high-level process for accessing and using these characterisation services is formalised in procedures and working level documents where necessary.



Characterisation teamwork

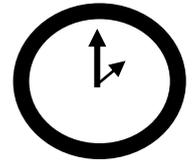
There is a close working relationship between the characterisation provider and LLW management teams to ensure successful, timely characterisation activities.

Timing of characterisation

The site / facility, where practicable and appropriate, undertakes characterisation at the earliest possible point in the lifecycle of the waste (i.e. prior to planning for waste retrieval).

Characterisation data and approaches are periodically reviewed to ensure that they remain fit-for-purpose.

There is a proactive approach towards characterisation.



Characterisation execution



Characterisation activities are appropriately planned with cognisance of historical data / provenance. Characterisation is executed using the techniques as required by the characterisation plan.

Characterisation review

The site / facility does not use historical characterisation data without review of assumptions and the ongoing applicability of the information.

Characterisation outputs

The output of characterisation activities is tailored to the requirements and level of understanding of the users of the output (decision makers / practitioners).

Waste decision makers and practitioners have an understanding of:

- The purpose of any characterisation activity undertaken on LLW
- The meaning of the output (data / results) of the characterisation activity
- The potential consequences of mis-use or mis-understanding of characterisation outputs

The organisation uses characterisation information to inform:

- The radiological / chemical classification of waste and waste routing decisions
- Setting of success criteria for waste treatment and disposal processes (e.g. decontamination)
- Volume / inventory assessment
- Design of new waste management facilities

Engagement

Communications with workforce

The organisation proactively communicates progress, successes, LFE and information about LLW management to the workforce. These mechanisms may include (but are not limited to):



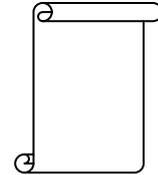
Intranet / internet



Social media



Presentations



Posters

Engagement with LLW management community

The organisation proactively engages with the UK LLW management community to communicate progress, share good practice / success stories, share LFE and to share information about LLW management with other organisations. Mechanisms for this may include (but are not limited to):



Participation in conferences, forums and meetings



Sharing LFE



Sharing case studies



Hosting visits

Engagement with stakeholders

The organisation proactively uses defined channels to engage with and communicate progress, successes and information about LLW management to stakeholders including the general public. These mechanisms may include (but are not limited to):



Newsletters



Internet



Social media



Presentations



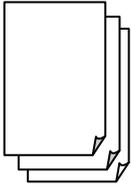
Formal publications

Inventory Management



The organisation has a defined resource for inventory management, and this is clearly identified in organisational structures and roles description documents. Personnel involved in the gathering, analysis and reporting of inventory data are suitably trained and qualified, and are deemed competent for carrying out the role. Training for waste inventory personnel includes instruction on waste estimating, characterisation and Quality Assurance techniques.

INVENTORY PROCEDURES



The organisation has a defined inventory management system, which includes approved procedures and processes for gathering, analysing, reporting, reviewing and change control for inventory information. These processes / procedures cover the full lifecycle of the inventory data from gathering to technical endorsement.

For data gathering, the organisation operates procedures that include independent peer review of their waste inventory data set(s) and there is evidence that this procedure is routinely used prior to inventory data gathering operations.

Any such processes adhere to appropriate national or international standards on data quality.

INVENTORY SYSTEM (DATA)



The organisation has a dynamic, near real-time waste inventory system in operation for all records associated with waste inventory data, which is accessible and available to waste practitioners. The inventory is updated when waste management activities are undertaken.

The organisation uses routine periodic desk top reviews and plant walk downs to review the adequacy and completeness of inventory data and updates the inventory accordingly.

The inventory system acts as a master-set of data which acts as the single data source for inventory projections and reporting such as the JWMP (waste forecast), UKRWI and WIF. Inventory data from the master data set is fed into the LTP. There is alignment – over the same period of time – between the different inventory projections / reports for the organisation on a site / facility basis.

Inventory data within the inventory system for a specific wastestream includes information about the plant items etc. that contribute to that wastestream (similarly to baseline decommissioning plans).

The organisation operates measures to control the handover of custody of inventory data to the relevant waste treatment and disposal facility for wastes that are transferred from site for treatment and / or disposal.

INVENTORY IMPROVEMENT PLAN

The organisation has a defined Inventory Improvement Plan which specifies the short, medium and long-term objectives for improvement of the waste inventory for the facility. For example, this may include (but is not limited to) plans to address issues with wastes that are non-compliant with the LLWR Environmental Safety Case or WAC, or else challenging historical waste routing decisions for wastestreams. The organisation has mechanisms in place to track progress against the actions identified in the Improvement Plan and is actively undertaking work to satisfy the actions identified.

Learning from Experience

AUDIT AND ASSURANCE

The organisation has a defined programme for audit and assurance activity relating to LLW management, a defined process / procedure for undertaking audit and assurance, and a mechanism to track progress on improvement actions.

There is evidence that improvement actions identified in the output of LLW management audit and assurance activities are implemented by the organisation through improvements to policies / strategies, procedures, practices and tools

BENCHMARKING

The organisation has an active programme of benchmarking goals / objectives, processes and procedures for LLW management against other high-performing organisations to identify areas for improvement and opportunities to emulate best practice. There is evidence that improvements to goals / objectives, processes and procedures are made by the organisation as a result of this benchmarking exercise.



LEARNING FROM EXPERIENCE

The organisation collects and collates learning from experience arising from tasks, projects and events (e.g. from post-job reviews).

Significant LFE gathered on LLW management activities is cascaded around the facility or site and to other sites or facilities as appropriate.

The organisation receives LFE from other facilities, sites and organisations on LLW management and reviews it for applicability. Any applicable LFE is cascaded around the facility or site.

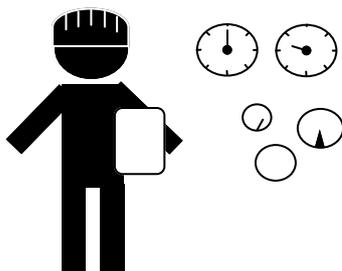
Personnel use LFE to inform LLW management decisions.

EVENT AND NEAR-MISS MANAGEMENT

There is a process for reporting and analysis of events and near-misses associated with LLW management. The organisation evaluates these and, where necessary, identifies appropriate corrective actions. The waste producer tracks progress in the implementation of any such corrective actions.

The organisation collates data relating to events and near-misses associated with LLW management, and routinely analyses this data to identify trends and patterns.

Personnel undertake timely investigations into identified adverse trends, significant events / near-misses and repetitive events / near-misses relating to LLW management. Investigations are used to identify root causes, implications and appropriate corrective actions (which are managed via the organisations process for tracking actions and progress).



GATHERING AND SHARING INFORMATION

Personnel at appropriate levels of the organisation participate in cross-facility, inter-site and national forums pertaining to LLW management to share information, knowledge and LFE.



Nuclear Waste
Research Forum

NWP Delivery Overview Group

LLW Practitioners Forum

LLWR Customer Forum

EMPLOYEE SUGGESTION SCHEME

The organisation has implemented a process that enables employees to make suggestions for improvements to plant or process for LLW management. Such suggestions are considered and, where appropriate, the employee is empowered to make the changes.

Glovebox modification suggestion earns Sellafield worker a national prize

13 November 2007

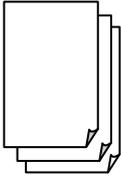
OPERATIONAL EXCELLENCE

Packaging and Transport

The organisation has established and routinely uses a standardised suite of packaging / containers for their standard LLW wastestreams. The packaging and container suite in use by the organisation is acceptable to treatment and disposal facilities (whether on-site, supply chain or LLWR). For non-standard wastestreams, the organisation has a defined process for selecting appropriate packaging / containers which involves consideration of acceptability at the treatment and / or disposal facility.



PROCEDURES AND TRAINING



The organisation has defined procedures and arrangements for the use of the packaging / container suite.

The organisation has procedures and processes for the transport of LLW which cover:

- The receipt of LLW to the site (where relevant)
- The transfer of LLW around the site
- The dispatch of waste from the site

Personnel involved in the transport of LLW to, around or from their site receive appropriate training and instruction to enable the safe and efficient transport of LLW.

Personnel involved in the transportation of LLW, including contractors, are provided with instructions to enable them to handle an event / incident en-route with the waste.

Where relevant, the organisation has a suite of loading plans for use of their suite of packaging for standard LLW waste streams. These are kept up-to-date and are accessible to relevant personnel. The organisation has included reference to these loading plans, or else have incorporated the loading plans, into the procedures for the use of the packaging suite.

The defined packaging / container suite is readily available, in good quality condition, when required to support waste retrieval, handling, treatment and disposal.

Packaging and containers are appropriately and clearly labelled with enough information to enable easy identification of the wasteform. The labelling system used by the organisation is sufficiently robust to maintain throughout the lifecycle of the container or package as required.

The standardised packaging / containment suite is available and in use by the organisation as early as possible in the lifecycle of the waste form so as to minimise the need for repackaging of the waste form.

The organisation has access to a suitable range of waste transport services – including road and rail. Such waste transport services may be supplied by the site / facility themselves, the supply chain, LLWR or a combination of these.



The organisation uses a defined process for choosing when to use rail transport vs. road transport. Rail transport is used preferentially – whenever feasible – to transport of LLW by road; and this is reflected in the strategy for the management of LLW.

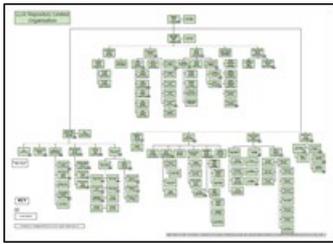
The organisation possesses, or has access to, an appropriate range of equipment and tools to enable the transport of the full range of standard LLW packages used by the organisation to the organisations schedule, safety and quality expectations.

Sites / facilities generating large volumes of waste transports LLW to a standardised schedule using a standardised process wherever possible

There are independent checks to verify that procedures for the transport of LLW are in place and are being followed.

People and People Organisation

ORGANISATIONAL STRUCTURE

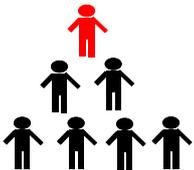


The organisation has a clearly defined organisational structure which identifies the personnel who are involved in and responsible for the management of LLW on that site. All levels of the organisation – including temporary personnel and contractors – have access to this information and are aware of who is involved in the management of LLW. Organisational structure information is easy to understand and is kept up-to-date.

ROLES AND RESPONSIBILITIES

Roles and responsibilities for all individuals involved in the direct management of LLW are formally defined, and these detail the scope of responsibilities for each individual. There is clear line-of-sight between the roles and responsibilities for such personnel and the site / facility policy and strategy for the management of LLW.

Roles and responsibilities for all individuals not involved in the direct management of LLW reflect corporate priorities and expectations for appropriate behaviours associated with the generation and management of wastes. The organisation does not view waste management to be solely the responsibility of waste management practitioners but considers effective and appropriate management of waste (such as non-radiological waste) to be the responsibility of all personnel working on the site.



Personnel at all levels of the organisation are motivated to accomplish corporate goals and objectives for management of LLW. Personnel are encouraged to suggest improvements to processes, procedures and plant that will improve waste management performance. Personnel are appropriately rewarded and recognised for contributions they make to improving the LLW performance of the site / facility.

GOALS AND PERFORMANCE MANAGEMENT

The organisation establishes and communicates corporate goals and priorities for LLW management.

The priorities for teams and individuals are periodically established; and these align with the corporate goals and priorities. Priorities for individual personnel involved in LLW management are aligned so as to achieve these goals.

In order to track progress against the achievement of these team / personal goals and objectives, meaningful and quantifiable measures of performance have been established.

Progress against team and personal goals for LLW management is measured at periodic intervals.

Personnel are held accountable for delivery of their personal goals and objectives as set by their manager.



LEADERSHIP AND MANAGEMENT



Leaders (managers) have a demonstrable understanding of the organisation corporate goals and priorities, and understand the approach (strategy) for LLW management. Leaders have a broad knowledge of LLW management.

Leaders ensure that resources are appropriately coordinated to meet the corporate goals and objectives for management of LLW.

Leaders are committed to delivery of corporate goals and objectives for LLW management and are committed to improving LLW management approaches and behaviours.

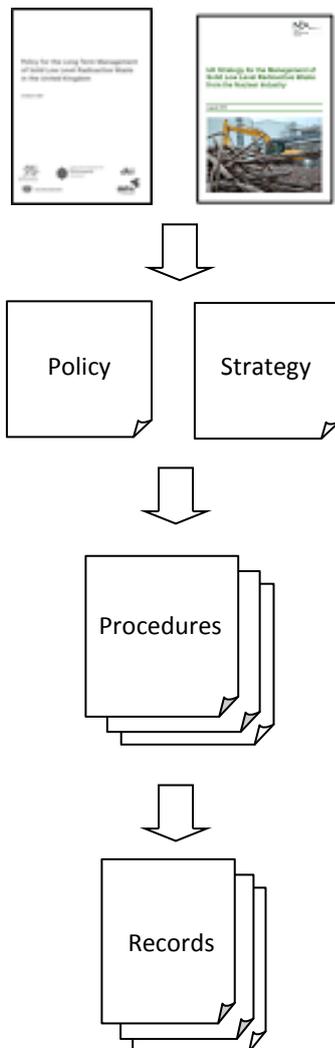
Leaders positively reinforce appropriate and positive waste management behaviours from their employees.

Policies and Strategies

In successful and effective LLW management organisations, senior management have defined a clear and unambiguous vision for LLW management. Senior management set high-level goals and objectives for the management of LLW.

The organisation has an up-to-date and current strategy for the management of LLW which describes how the corporate goals and the policy will be achieved. This may consist of a specific strategy relating to the management of LLW or else may form part of a different strategy, such as the Integrated Waste Strategy, for the organisation.

LINE OF SIGHT



The LLW management policy and strategy for the organisation clearly demonstrate knowledge of and linkages to Government policy and the National Strategy for management of LLW. There is clear line-of-sight from Government policy and National Strategy through to organisation level policy and strategy, and hence to working level documents.

PRIORITIES AND GOALS

Collectively, the LLW management policy and strategy specify the corporate priorities relating to LLW management for the organisation. There is clear and unambiguous definition of the priorities and goals that senior management has with respect to the management of LLW. The defined goals and priorities for the organisation relate to the defined goals of the National Strategy with an emphasis on:

- A reduction in the accumulation of volumes of waste on-site
- A reduction in the volume of waste consigned for disposal at the LLWR
- Maximised volumes of waste diverted to alternative treatment and disposal routes
- Application of the Waste Hierarchy

The organisation tracks progress against the achievement of corporate level goals and objectives. Where gaps or deficiencies in meeting goals are identified, there is a process for identifying, implementing and tracking progress of remedial actions.

The policy and strategy environment encourages the identification and, where feasible, exploitation of “flywheel” or opportunity projects to underpin effective LLW management.

RISK MANAGEMENT

The organisation has an understanding of the risks and opportunities associated with the management of LLW according to their policy and strategy. There is a defined process for the management of risks and opportunities, and has a current risk register that records the risks and opportunities relating to LLW management. There is evidence that there is regular, periodic review of the risks and opportunities, and appropriate update of the risk and opportunities register.

COMMUNICATION AND UNDERSTANDING OF STRATEGY



The policy and strategy are communicated throughout the organisation. Relevant personnel at all levels have a demonstrable understanding of the corporate goals and strategy for management of LLW on the site.

Training and Qualification

TRAINING SYSTEMS

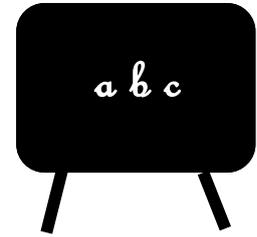
Waste management (and specifically management of LLW) is reflected in the training system for the organisation.

There are role descriptions, competency frameworks and training profiles for all key roles related to LLW management. There is clear line-of-sight between these elements of the training system.

Training and instruction of personnel for roles relating to LLW management is recorded. Records of training and qualification are maintained and current.

Relevant training and instruction materials / content is kept up-to-date and reflect current applicable legislation, corporate requirements and best practice.

Waste personnel for roles relating to LLW management are observed in-the-field, delivering LLW management, prior to being classified as competent (suitably qualified and experienced).



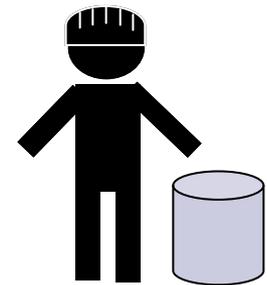
Personnel throughout the organisation have received training and instruction to provide them with a basic understanding of waste management, and can demonstrate an understanding of the differences between radioactive waste and non-radioactive waste, and the Waste Hierarchy.

TRAINING AND QUALIFICATION OF WASTE PRACTITIONERS

Personnel directly involved in LLW management (the retrieval, handling, packaging, storage, transport, treatment and / or disposal of LLW) are provided with appropriate training and instruction to undertake their roles safely, compliantly and effectively.

Personnel working to procedures have received appropriate training and instruction to enable them to deliver the work safely, compliantly and effectively.

Managers ensure that waste practitioner personnel have the knowledge, skills and competency to undertake the safe and effective management of LLW.



TRAINING THEMES

The following themes are included in training and instruction for personnel on waste management:

- Waste Hierarchy
- Basic themes of the National LLW Strategy
- Corporate policy and strategy for LLW management
- Corporate goals and objectives for LLW management
- Reasoning / need for effective LLW management



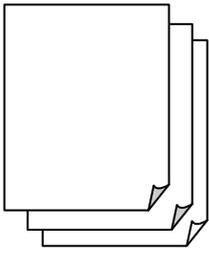
Management demonstrate commitment and support for the organisations training strategy and delivery of training, recognising the importance of training to delivery of effective LLW management.

Management and personnel are engaged with the training strategy and contribute positively towards it by identifying problems, generating ideas and identifying training requirements.

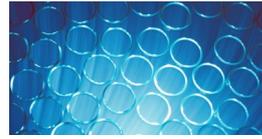
There is recognition that skills and knowledge degrade with time through the identification of the value of refresher training. Training has a defined life-span and refresher training is appropriate recorded on the training plan for individuals personnel. Personnel attend and positively contribute towards refresher training.

Waste Consignment

Processes and procedures



The organisation has robust procedures and processes in place for the consignment of waste off-site. These processes / procedures include the inspection of loads, the inspection of records and verification monitoring prior to the off-site consignment.



The organisation uses robust processes for the characterisation of waste [refer to *Characterisation best practice*]



Procedures, processes and arrangements relating to waste consignment include multiple layers of defence against mis-consignment.

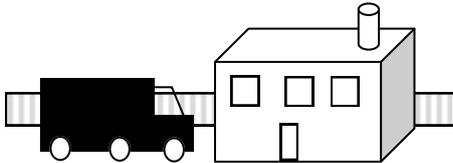


The organisation undertakes audit and assurance activities (involving external personnel where appropriate) relating to waste consignment arrangements. The organisation undertakes a defined programme of verification monitoring of loads prior to off-site consignment.

Facilities and equipment

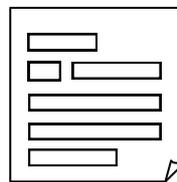
The organisation has suitable infrastructure, facilities and equipment to facilitate the inspection of waste consignments prior to despatch, to undertake verification monitoring and to safely quarantine waste as required.

Equipment and infrastructure used for off-site waste consignment is suitably maintained, calibrated and functionally tested.



The organisation maintains a specific physical waste despatch area where the final process steps (e.g. load / record inspection, verification monitoring, reassurance monitoring etc.) are undertaken prior to consignment.

Records and information



The organisation creates and maintains records which track waste items and waste populations across their lifecycle from retrieval to consignment. Records are kept up-to-date and are checked during the waste consignment process.



Where relevant (used), organisation use a formal procedure for verifying alignment between internal records, characterisation records (such as LLWR WCH forms where relevant) and consignment documentation.

The organisation uses tools including (but not limited to) a master schedule and a live waste tracking system to consolidate information about where a waste item / population is, what is to be consigned, where and when.

People



Personnel involved in LLW management (across the LLW lifecycle) demonstrate a good awareness of the risks of waste mis-consignment.



Personnel involved in the consignment of LLW off-site are SQEP and demonstrate a good understanding of the process, and the reasoning for the process, of waste consignment.



Leaders demonstrate good understanding of the risks and implications of waste mis-consignment. Leaders reinforce a positive waste consignment culture.

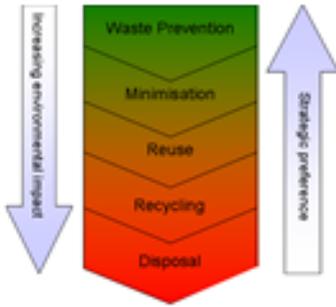


Roles, responsibilities and accountabilities relating to the off-site consignment of waste are clearly defined and understood by all those involved.



The organisation proactively seeks and shares information on processes / arrangements and (where relevant) learning from experience relating to waste consignment. The organisation proactively seeks and implements ways to improve their waste consignment arrangements.

Waste Hierarchy



The approach of the organisation towards the management of LLW is focussed on application of the Waste Hierarchy as a mechanism to reduce the volume of waste disposed of at LLWR.

The commitment to application of the Waste Hierarchy in LLW management is formally detailed in corporate policy, strategy, corporate goals and working level procedures as required.

The organisation demonstrably implements a policy where, whilst the value and need for disposal of certain LLW wastestreams to LLWR is acknowledged, use of the LLWR for disposition of LLW is considered as the option of last resort (i.e. when all other options have been discounted).

UNDERSTANDING OF THE WASTE HIERARCHY



Personnel at all levels of the organisation have knowledge and understanding of the Waste Hierarchy, and demonstrate understanding of how the Waste Hierarchy is applied on their site.

APPLICATION OF THE WASTE HIERARCHY

The organisation demonstrably applies the Waste Hierarchy in management of their LLW inventory. Examples of application of the Waste Hierarchy may include (but are not limited to):

WASTE PREVENTION

Materials / consumables are not unnecessarily taken into radiologically controlled areas.

WASTE PREVENTION

The organisation has implemented "paperless offices" within radiologically controlled areas.

MINIMISATION

The organisation has implemented processes for the use of personal protective equipment that minimise the volume of contaminated waste.

MINIMISATION

The organisation has infrastructure for the at-source segregation of wastes within radiologically controlled areas.

MINIMISATION

Contaminated and non-contaminated wastes are not bulked or mixed together unnecessarily during the waste lifecycle

MINIMISATION

Retrieval of waste is carefully planned so as to enable the at-source segregation of different waste types / classifications.

REUSE

The organisation uses wastes – where feasible – as a replacement for raw materials (e.g. the reuse of VLLW as backfill or landscaping).

REUSE

The organisation proactively uses systems – such as the NDA asset transfer database or internal "Ebay" type systems – for the re-use of assets.

RECYCLE

The organisation uses treatment and disposal routes that enable the recycling of waste (e.g. metal melting)

DISPOSE

The organisation uses volume reduction techniques to minimise the volume of waste for disposal (e.g. compaction or incineration).

Waste Management Operations

SORTING AND SEGREGATION

The organisation recognises that timely (i.e. as early as possible in the waste lifecycle) sorting and segregation of waste is important in the application of the Waste Hierarchy and maximising waste diversion from the LLWR.

Sorting and segregation of waste is carried out at source (at retrieval / generation) and the facility has the necessary infrastructure / equipment / information to enable this (for example – but not limited to - bins, labels, radiation monitoring equipment etc.). Personnel retrieving or generating waste have received training and instruction on waste segregation.



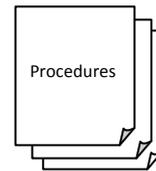
SYSTEMS, TOOLS AND EQUIPMENT

Necessary tools, equipment and consumables are readily available to enable the retrieval, handling, packaging, transfer and disposal of LLW.



Systems and tools (e.g. data assessment tools) provide the right information, at the right time, in the right format for the treatment and / or disposal facility.

Volumes of waste for treatment and / or disposal are aggregated (bulked) and transferred for treatment / disposal on a fixed, standard schedule.

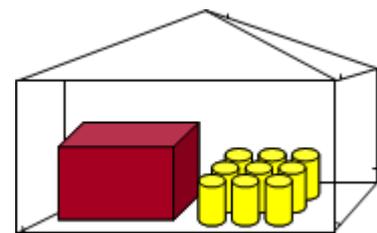


The organisation has procedures / processes for the handling, treating, packaging, transfer and disposal of LLW. Current copies of applicable procedures are used as references when personnel are undertaking operations to handle, treat, package, transfer and dispose of LLW. Waste inventory records maintained by the organisation record the location, type, quantity, characterisation data and waste route of LLW managed by the organisation.

STORAGE

The organisation has developed and implemented a storage solution for their LLW that achieves:

- Minimisation of exposure to people
- Preclude deterioration of the wastefrom and waste package
- Maintain the integrity of the waste form
- Prevent the spread of contamination from the waste form



The organisation minimises the volume of accumulated wastes by maximising the throughput of waste to treatment and disposal routes.

LLW packages undergoing interim storage are labelled so as to enable easy identification.

LLW is stored in an environment which maximises the lifespan of the packaging (e.g. minimises the rate of corrosion etc.)

The waste form and the container / package the waste is stored within are physically and chemically compatible.

LLW is stored under cover to minimise water ingress into the waste form (and the potential spread of contamination) and to minimise degradation of packaging.

LLW is stored securely and access to the waste is appropriately restricted so as to ensure the ongoing integrity of the waste form (this is particularly key following characterisation of the waste).

Waste Route Availability and Decision Making



The organisation recognises that there is a fundamental requirement for diversion of waste away from disposition at the national Low Level Waste Repository facility in West Cumbria. This recognition is formally recognised in the site / facility policy, strategy, goals and objectives relating to LLW management.

WASTE ROUTES (STANDARD LLW WASTESTREAMS)

The organisation has access to the full range of waste treatment and disposal services for their standard LLW wastestreams – LLW, metallic LLW, combustible (soft-solid) LLW, LA-LLW and VLLW. These services may be accessed via the supply chain (local sole source arrangements or LLWR framework), via on-site infrastructure or a combination of the two. Commercial arrangements to access these services are established and the use of the full range of routes is appropriately permitted, with no significant restrictions on the volume or radioactivity that can be routed.

The organisation has defined and current procedural and practical / logistical arrangements in place for the use of all of these routes.

Use of alternative treatment and disposal routes, that divert waste away from disposition at LLWR, are maximised as far as practicable. The organisation sets challenging goals and objectives for the diversion of waste away from the LLWR, and progress against these goals and objectives is routinely monitored.



WASTE ROUTES (NON-STANDARD LLW WASTESTREAMS)

The organisation has a defined inventory of non-standard LLW wastestreams (i.e. those that do not readily fit into existing waste treatment and disposal routes).

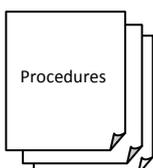


The organisation actively identifies and establishes arrangements to use technologies for the management of non-standard LLW wastestreams. There is evidence of the use of innovation in the management of non-standard LLW wastestreams.

The organisation works collaboratively with other organisations – sites within the same organisation, other organisations, LLWR, NDA, supply chain and universities / research establishments – to identify, trial and implement technologies for the management of non-standard LLW wastestreams. The output of this collaborative work is made available to other organisations.

WASTE ROUTE DECISION MAKING AND OPTIONEERING

Formal optioneering (BAT or BPM) has been undertaken for the full range of standard LLW wastestreams and non-standard wastestreams where applicable. The outputs of this formal optioneering is accessible by relevant LLW management practitioners.



The organisation has defined procedures and arrangements that detail the process for making waste routing decisions for their standard and non-standard LLW wastestreams.

Waste route decision making takes account of the nature of the waste form and its environment, available characterisation data, the WAC for the available treatment and disposal routes, the site permit / regulatory requirements, stakeholder concerns, corporate goals and objectives for LLW management, the defined BAT / BPM for the waste form, the Waste Hierarchy and relevant national / corporate policies and strategies.

The organisation has appropriate and effective mechanisms and structures in place for the verification and / or sanction of waste route decision making (where applicable). Records of the outcome of waste route decision making for specific waste items and waste forms are created and maintained.

Peer Review Model: Scoring Matrix

Scoring Matrix - Characterisation

Keyword	1	2	3	4	5
CH1 - Knowledge management	No characterization / waste provenance knowledge management.	Some characterisation / waste provenance knowledge management / record retention.	There is evidence of characterisation / waste provenance knowledge management and record retention for key wastestreams.	There is evidence of characterisation / waste provenance knowledge management and record retention for most wastestreams.	Robust characterisation / waste provenance knowledge management, record retention and record retrieval practices for all wastestreams.
CH2 - Consideration of waste routes	Poor / generic level of characterisation data which results in some waste management options being precluded.	Characterisation is undertaken late in the waste lifecycle but with consideration to proposed waste routes. Some waste routes or transport / packaging options may be precluded.	Characterisation is undertaken with consideration to proposed waste routes.	Characterisation is undertaken with consideration to proposed waste routes and transport / packaging requirements.	Characterisation is carried out as early as possible / practicable within the waste generation process so as to inform decisions.
CH3 - Processes and procedures	No formal process or written documentation for characterisation. There are a limited set of activity assessment methodologies in place.	There are ad-hoc processes / procedures in place for characterisation. There is recognition of the principles in the characterisation NICoP.	High level process / procedures in place for characterisation. Characterisation is carried out in accordance with the NICoP. There is a set of activity assessment methodologies in place.	High level process / procedures in place for characterisation. There are some detailed characterisation processes / procedures. Characterisation is carried out in accordance with the NICoP.	Characterisation is formalised in detailed procedures. Characterisation is carried out in accordance with the NICoP and in accordance with the principles of DQO. There is an extensive set of activity assessment methodologies in place.
CH4 - Fingerprints	Characterisation data (fingerprints) is legacy information and very out-of-date.	Most characterisation data is out-of-date. There is some evidence of attempts to review and refresh the data.	Characterisation data (fingerprints) is valid for all key (high volume) wastestreams, fit for purpose and current. This data is reviewed via a periodic review programme. Some characterisation data may be out-of-date for other wastestreams.	Characterisation data (fingerprints) is valid for all key (high volume) wastestreams, fit for purpose and current. This data is reviewed via a periodic review programme	Characterisation data (fingerprints) is valid, fit for purpose and current. Data is reviewed via a periodic review programme.
CH5 - Access to services	There is no access to services for LLW characterisation (either on site or off site).	Access to services for LLW characterisation (either on site or off site). There is evidence of some use of such services.	Access to services for LLW characterisation (either on site or off-site). There is evidence of the use of such services.	Access to services for LLW characterisation (either on site or off site). There is evidence of extensive the use of such services.	Access to services for LLW characterisation (either on site or off site). These services are used routinely.
CH6 - SQEP capability	No SQEP characterisation capability.	Some SQEP characterisation capability.	SQEP characterisation capability but minimal depth / range.	Suitably SQEP characterisation capability with adequate strength and depth	Suitably SQEP characterisation capability with more than adequate strength and depth.
CH7 - Planning	There is no defined process for planning characterisation activities.	Cost and schedule are the dominant factors in decision making for characterisation activities.	The process for planning characterisation activities includes consideration of key factors such as waste route, sample matrix, representativeness etc.	The process for planning characterisation activities includes consideration of a broad range of factors such as waste route, sample matrix, "representativeness" etc.	The process for planning characterisation activities includes consideration of key factors such as waste route, sample matrix, "representativeness" etc. The decision making process actively considers the trade-off between phantom activity and cost of characterisation.
CH8 - Defence against mis-characterisation	No layers of defence to mis-characterisation such as peer review / cross-checking.	Some layers of defence to mis-characterisation such as peer reviews / cross-checking of data.	Auditable assurance process to mitigate risk of mis-characterisation is available and used.	Auditable assurance process to mitigate risk of mis-characterisation is available and used. Some additional measures to mitigate risk of mis-characterisation.	Multiple layers of defence against mis-characterisation including an auditable assurance process.
CH9 - Characterisation methodologies	No defined characterisation methodologies.	Ad-hoc characterisation methodologies are in-use.	Some characterisation methodologies / generic common waste routes.	Common characterisation methodologies in place and ad-hoc as required.	Flexible characterisation methodologies - covering types, packages and routes.
CH10 - Characterisation programmes	There are no formal characterisation programmes established but ad-hoc characterisation activities are undertaken.	There is a limited characterisation programme but characterisation activities are predominantly reactive and ad-hoc.	A characterisation programme is in place.	A characterisation programme is in place and development of a schedule for characterisation activities has commenced.	There is a comprehensive characterisation programme and schedule which is adhered to by all parties.

Scoring Matrix – Inventory Management

Keyword	1	2	3	4	5
IN1 - Inventory underpinning	There is a demonstrable lack of understanding of the waste inventory.	There is evidence of some underpinning of the waste inventory but with large gaps in the data.	There is an acceptable inventory data set which is at the generic WCH level.	There is evidence of good underpinning of the waste inventory with minimal gaps in the data.	Fully underpinned inventory that is aligned to waste routes.
IN2 - Inventory management system	There is no inventory management system in place.	There is an ad-hoc inventory management system in place.	There is a retrospective inventory management system in place.	A live inventory management system is in development. The inventory is amended / updated following waste consignments from the facility / site.	Live inventory management system is in use and that is aligned to waste routes. The inventory is amended / updated following waste consignments from the facility / site.
IN3 - Team / capability	There is no local dedicated inventory team or personnel.	There is no local dedicated inventory team or personnel but there is a centralised (functional) waste inventory team.	There is an ad-hoc local inventory team (i.e. which is formed to undertake large inventory projects such as UKRWI but which is not a consistent team).	There is a limited local inventory team (i.e. personnel who undertake inventory management in addition to other roles).	There is a dedicated local inventory team or personnel.
IN4 - Data ownership	There is no evidence of ownership of plant inventory data.	Some plant waste inventory data is "owned" by a central waste function. There is little evidence of data ownership on a local level.	Plant waste inventory data is "owned" by a central waste function. There is little evidence of data ownership on a local level.	Plant waste inventory data is largely "owned" by a central waste function. There is some evidence of data ownership on a local level.	There is evidence that the waste producer has ownership of the waste inventory data.
IN5 - Change management	There is no change management process for waste inventory data in place. Data is old or out-of-date.	There are ad-hoc arrangements for change management of waste inventory data in place. A significant amount of data is old or out-of-date.	A basic change management process for waste inventory data is in place and is being followed by some people. Data is up-to-date for all key wastestreams.	A change management process for waste inventory data is in place and is being followed by most people.	There is a fully implemented and documented change management system relating to inventory data. Data is up-to-date for all wastes.
IN6 - Data set consistency	There is no consistency across data sets (e.g. UKRWI → WIF → JWMP → LTP).	There is some consistency across data sets (e.g. UKRWI → WIF → JWMP → LTP).	There is consistency across most data sets (e.g. UKRWI → WIF → JWMP → LTP).	There is a good degree of consistency across data sets (e.g. UKRWI → WIF → JWMP → LTP).	There is full consistency across data sets (e.g. UKRWI → WIF → JWMP → LTP).
IN7 - Forecast and actuals correlation	There is no correlation between waste forecast data and waste actuals data.	There is some variance between waste forecast data and waste actuals data.	There is some variance between waste forecast data and waste actuals data, but there is some underpinning / explanation for the variance.	There is good correlation between waste forecast data and waste actuals data.	There is minimal variance between waste forecast data and waste actuals data.
IN8 - Cultural understanding of inventory value	There is no demonstrable understanding of the need for good inventory data, even by those directly involved in LLW management.	Some personnel directly involved in LLW management demonstrate a good understanding of why good inventory data is needed.	Waste practitioner personnel demonstrate a good understanding of why good inventory data is needed.	Personnel directly involved in LLW management demonstrate a good understanding of why good inventory data is needed. Some other personnel demonstrate an understanding of the need for good inventory data.	A cross section of personnel demonstrate a good understanding of why good data is needed.
IN9 - Improvements	There is no process employed for inventory improvement. No plan is in place to improve the quality of inventory data and the inventory management system.	There is a commitment to undertake inventory improvement activities. No plan is in place to improve the quality of inventory data and the inventory management system, but there is recognition that an improvement plan is needed.	Inventory improvement is undertaken on an ad-hoc basis. There is a commitment to develop a plan to improve the quality of inventory data and the inventory management system. Some improvement activities may be undertaken in an ad-hoc manner.	A structured process for inventory improvement is in place and is actively employed (e.g. SMART). Some waste inventory and waste inventory management system improvement activities have been planned.	A structured process for inventory improvement is in place and is actively employed (e.g. SMART). The output of this process is reflected in the waste inventory and LTP. A full inventory improvement plan is in place and there is evidence that this is being actively managed.
IN10 - Forecasting arrangements and horizon	There is minimal waste forecasting undertaken on a local or organisational level.	Waste forecasting is undertaken on an organisational basis in line with JWMP and / or LLWR requirements.	Waste forecasting is undertaken on an organisational basis in line with JWMP and / or LLWR requirements. There is evidence that waste forecasting is undertaken on a local basis (i.e. for specific projects or plants) for the forward year.	Waste forecasting is undertaken on an organisational basis in line with JWMP and / or LLWR requirements. There is evidence that waste forecasting is undertaken on a local basis (i.e. for specific projects or plants) for the forward 5 years. There is some granularity within the forecasts of consignments.	Waste forecasting is undertaken on an organisational basis in line with JWMP and / or LLWR requirements. There is evidence that waste forecasting is undertaken on a local basis (i.e. for specific projects or plants) for the forward 5 years on a waste consignment basis.

Scoring Matrix – LFE and Engagement

Keyword	1	2	3	4	5
LFE1 - Culture of transparency and openness	There is evidence that the LLW management is not transparent and open.	There is evidence of some openness and transparency in the LLW culture. Information on LFE relating to LLW management is shared with practitioners on an ad-hoc basis. There is limited sharing of information relating to best practice.	The LLW management culture is open and transparent. Information on LFE relating to LLW management is routinely shared with practitioners. There is ad-hoc sharing of information on best practice.	The LLW management culture is open and transparent. LLW management LFE and best practice is shared routinely with practitioners. LFE and best practice relating to LLW management is shared with other personnel within the organisation on an ad-hoc basis.	The LLW management culture is open and transparent. LLW management best practice and LFE is shared with all relevant personnel on a routine basis.
LFE2 - LFE processes and procedures	There is no structured LFE process or system in place relating to LLW management. There is no evidence of collection or sharing of LFE relating to LLW management.	A process or system for the sharing of LFE within a specific facility is in place. There is limited evidence of the collection or sharing of LFE.	A process or system for the sharing of LFE within the facility and site is in place. There is evidence of the collection and sharing of LFE within the site.	A process or system for the sharing of LFE within and external to the facility / site is in place. A process for sharing of best practice within the facility / site is in place. There is evidence of the collection and sharing of LFE within the site and to some external facilities.	A structured process or system for sharing best practice and LFE within and external to the facility / site is in place. There is evidence of the collection and sharing of LFE and best practice within the site and to a range of external facilities / sites / organisations.
LFE3 - Events processes and procedures	There is no process for reporting and analysing events related to LLW management. There is no evidence of reporting or analysing events related to LLW management.	There is some evidence of a process or system for reporting events and analysing events related to LLW management. There is evidence that the process / system is used sporadically.	There is a generic process for reporting events related to LLW management. This process is available and there is evidence that it is routinely used. There is ad-hoc analysis of events relating to LLW management.	There is a generic process for reporting related to LLW management. This process is available and there is evidence that it is routinely used. Specific analysis of events relating to LLW management is undertaken by appropriate personnel.	There is a specific process for reporting and analysing events related to LLW management. This process is available and there is evidence that it is routinely used.
LFE4 - Trending	There is no evidence of trending of events relating to LLW management.	There is some evidence of trending of events relating to LLW management. There is limited evidence of remediation / improvement opportunities being identified or implemented.	There is a process for trending events relating to LLW management and identifying remediation / improvement opportunities that mitigate impacts and probability of recurrence. The process is routinely used.	There is a process for trending events relating to LLW management and identifying remediation / improvement opportunities that mitigate impacts and probability of recurrence. There is evidence of some root-cause analysis and actions to address issues identified during this process. The process is routinely used.	There is a process for trending events relating to LLW management and identifying / implementing remediation or improvement opportunities that address the root-causes of the events. This process is available to all and there is evidence that it is routinely used.
LFE5 - Culture of learning and engagement	The culture within the organisation discourages learning and engagement in change.	There is evidence that personnel are occasionally encouraged to identify issues. There is evidence that occasionally improvement actions are sanctioned by management to resolve these issues. Personnel feel that it is an "uphill struggle" to have issues resolved.	Personnel are actively encouraged to identify issues. Management routinely review these issues and sanction improvement actions where required.	Personnel are actively identifying issues. Management routinely review these issues and sanction improvement actions where required. There is some evidence that personnel are empowered to resolve some issues themselves.	Personnel are actively identifying issues and are empowered to resolve them.
LFE6 - Suggestion schemes	There is no suggestion scheme for employees (to suggest improvements relating to LLW management practice) on an organisational or local level.	There is a process / scheme in place to enable people to suggest improvements to LLW management practices at a corporate level. Improvement assessment is undertaken at a corporate level and changes are not readily implemented at a local level. There is evidence that the process is not routinely used.	There is a process / scheme in place to enable people to suggest improvements to LLW management practices at a corporate and local level. Managers are able to assess improvements and implement the changes where appropriate. There is evidence that this process is routinely used.	There is a process / scheme in place to enable people to suggest improvements to LLW management practices at a corporate and local level. Managers are able to assess improvements and implement the changes where appropriate. There is evidence that personnel are able to implement changes themselves in some cases. There is evidence that this process is routinely used.	There is a process / scheme in place to enable people to suggest improvements to LLW management practices at a corporate and local level; and that enables them to implement the changes. There is evidence that this process is routinely used.
LFE7 - Participation in inter-site and national forums	There is no participation in intersite or national forums relating to LLW management.	A limited number of personnel directly involved in the management of LLW are actively engaged with intersite information forums relating to LLW management.	Some personnel directly involved in the management of LLW are actively engaged with intersite forums relating to LLW management. There is some evidence that there is participation in national information forums relating to LLW management.	Most personnel directly involved in the management of LLW are actively engaged with intersite forums relating to LLW management. There is evidence of participation in national information forums relating to LLW management.	All personnel involved in the management of LLW are actively engaged with intersite and national information forums relating to LLW management.
LFE8 - Benchmarking	There is no evidence of benchmarking (within the organisation or externally).	There is evidence that some benchmarking of LLW practice across the organisation is undertaken and that some learning from it is being implemented.	There is an active programme for benchmarking across the organisation. There is evidence that this benchmarking is undertaken and that learning from it is being implemented.	There is an active programme for benchmarking across the organisation. There is evidence of some external benchmarking. There is evidence that this benchmarking is undertaken and that learning from it is being implemented.	There is an active programme for benchmarking across the organisation and externally. There is evidence that this benchmarking is undertaken and that learning from it is being implemented.
LFE9 - Audit and assurance	The audit and assurance process for the organisation does not target LLW management and is either not scheduled or else is not kept up to schedule.	There is evidence that audit / assurance of some LLW management activities is included within a programme for the organisation. Audit / assurance activities are ongoing but is behind schedule. There is limited evidence that the learning from the audit / assurance activities are fed back to the organisation and acted upon.	There is a programme for internal audit and assurance relating to LLW management, which is up-to-date. There is evidence that audit and assurance activities are being conducted. There is some evidence that learning from audit and assurance is fed back to the organisation and is acted upon.	There is a comprehensive programme of audit and assurance relating to LLW management, which is up-to-date, and which includes some audit / assurance by external organisations. There is evidence that audit and assurance activities are being conducted. There is evidence that learning from audit and assurance is fed back to the organisation and is acted upon.	There is a comprehensive programme for audit and assurance relating to LLW management, which is up-to-date, which includes audit / assurance by external organisations and of key waste management service suppliers. There is evidence that audit and assurance activities are being conducted. There is evidence that learning from audit and assurance is fed back to the organisation and is acted upon.
LFE10 - Opportunity projects	There is no funding in place to enable a response to LFE / opportunities relating to LLW management.	Funding can be obtained to enable opportunity projects to be enacted, as a response to LFE or improvement suggestions from personnel. There is limited / some evidence that such improvements have been implemented on an ad-hoc basis.	Funding can be obtained to enable opportunity projects to be enacted, as a response to LFE or improvement suggestions from personnel. There is evidence that such improvements have been implemented on an ad-hoc basis.	Funding is in place to enable opportunity projects to be enacted, as a response to LFE and as a response to personnel suggestions of improvements. There is evidence that this funding is used and that such improvements are implemented on an ad-hoc basis.	Funding is in place to enable opportunity projects to be enacted, as a response to LFE and as a response to personnel suggestions of improvements. There is evidence that this funding is used and that such improvements are implemented routinely.
LFE11 - Engagement with the LLW community on LFE	There is no evidence of engagement with the wider LLW community. There are no or limited communications for learning relating to LLW management.	Some communications for learning relating to LLW management are in place and use a limited range of media. There is evidence that these communication channels are used. Communications on LLW management are focused on personnel directly involved in LLW management.	A range of communications for learning relating to LLW management are in place and use a limited range of media. There is evidence that these communication channels are in routine use. Personnel directly involved in LLW management are aware of recent successes / issues / advances relating to LLW management.	A range of communications for learning relating to LLW management are in place and use a wider range of media. There is evidence that these communication channels are in routine use. A cross section of personnel across the organisation are aware of recent successes / issues / advances relating to LLW management. There is evidence of engagement with the wider LLW community within the organisation and some evidence of engagement with the external community.	A range of proactive communications for learning relating to LLW management are in place and use a range of media. There is evidence that these communication channels are in routine use. A cross-section of personnel across the organisation and external stakeholders are aware of recent successes / issues / advances relating to LLW management. There is evidence of routine engagement with the wider LLW community within and external to the organisation.
LFE12 - Stakeholder engagement processes	Stakeholders are not recognised nor engaged with on issues pertaining to LLW management.	Some stakeholders relating to LLW management have been identified but some key groups are not recognised. Stakeholder engagement on LLW matters is sporadic, ad-hoc and unstructured.	There is evidence that key internal and external stakeholders relating to LLW management are identified. There is evidence of structured stakeholder engagement.	There is evidence that a wider range of internal and external stakeholders relating to LLW management have been identified. There is a process for stakeholder engagement which is used for interaction with key stakeholders.	Internal and external stakeholders relating to LLW management at the facility / site are identified. A stakeholder engagement process is in place and is used routinely.
LFE13 - Stakeholder feedback	Stakeholder feedback is not routinely collected. Stakeholders have a poor perception of the LLW management practice at the facility / site.	There is evidence that stakeholder feedback is collected occasionally from a limited group of stakeholders. There is a perception that LLW management practices are acceptable but that there is significant scope for improvement.	Stakeholder feedback (from key stakeholder groups) is collected periodically. Stakeholder feedback on LLW management practices is positive.	Stakeholder feedback relating to LLW management is collected periodically on a more frequent basis and from a wider group of stakeholders. Stakeholder feedback on LLW management is positive.	Feedback from internal and external stakeholders relating to LLW management at the organisation is routinely collected. Stakeholder feedback is positive and LLW management practices are considered to be best practice by stakeholders.

Scoring Matrix – Packaging and Transport

Keyword	1	2	3	4	5
PT1 - Packaging fleet for standard wastestreams	The organisation has no access to a fleet of standard packages for standard wastestreams / routes. The package fleet available precludes use of some waste routes. Non-existent and / or non-compliant Waste Loading Plans.	The organisation has a fleet of standard packages for some wastestreams / routes and some standard Waste Loading Plans in place. Waste routes are not precluded by the available package fleet.	The organisation has a fleet of standard packages for all key (high volume) wastestreams / routes which have standard Waste Loading Plans in place. Package types may not enable optimal packing efficiency. Waste routes are not precluded by the available package fleet.	The organisation has a fleet of standard packages for most wastestreams / routes and which have standard Waste Loading Plans in place. The packaging fleet enables more optimal packing efficiency. Waste routes are not precluded by the available package fleet.	The organisation has a fleet of standard packages for all standard wastestreams / waste routes which have standard Waste Loading Plans in place. The standard packages have been selected considering compatibility with on-site / off-site waste treatment facilities and routes are not precluded by the fleet.
PT2 - Condition of packaging fleet	The standard fleet of packages are non compliant or poorly maintained packages. Very few packages are available for use.	Some of the fleet of standard packages are available in good condition. A large proportion of the standard fleet are non-compliant or poorly maintained.	The required portion of the fleet of standard packages is available and are in good condition.	The majority of the fleet of standard packages are available and are in good condition.	The entire fleet of standard packages are available and are in good condition, and are correctly maintained.
PT3 - Processes and procedures	Procedures for waste loading, loading onto conveyances, transport, unloading and maintenance are out-of-date, incorrect or inadequate.	Procedures are current, correct and up-to-date for the use (waste loading, loading onto conveyances, transport, unloading and maintenance) of some the available range of standard packaging.	Procedures are current, correct and up-to-date for the use (waste loading, loading onto conveyances, transport, unloading and maintenance) of the available range of standard packaging.	Procedures are current, correct and up-to-date for the use (waste loading, loading onto conveyances, transport, unloading and maintenance) of most of the fleet of standard packaging.	Procedures are current, correct and up-to-date for the use (waste loading, loading onto conveyances, transport, unloading and maintenance) of the full range of standard packaging.
PT4 - Packaging for non-standard wastestreams	There is no process in place for the selection and development of packaging for non-standard wastestreams. This absence of process precludes the treatment / disposal of non-standard wastestreams.	There is a process in place for the selection of packaging for non-standard wastestreams from a set of standard packaging. There is evidence that this process is used on an ad-hoc basis.	There is a process in place for the selection of packaging for non-standard wastestreams from a set of standard packaging. There is evidence that this process is in routine use.	There is a process in place for the selection of packaging for non-standard wastestreams from a set of standard packaging; which is in routine use. There is some evidence of the development of packaging for non-standard wastestreams.	There is a process in place for the selection and development of packaging for non-standard wastestreams. There is evidence that this process is in routine use.
PT5 - Labelling	Labelling is non-existent or woefully inadequate.	Packages are labelled but there is some deficiency in the level of information or legibility of the labels.	Packages have clear labelling appropriate to the waste and route.	Packages have clear labelling appropriate to the waste and route, plus some packages are labelled to enable tracking (e.g. bar-coding, transponders etc.).	Packages have clear labelling appropriate to the waste and route, plus all packages are labelled to enable tracking (e.g. bar-coding, transponders etc.).
PT6 - Packaging, lifting and loading infrastructure	Inadequate packaging / loading / lifting facilities in area.	The organisation has some lifting and loading equipment needed for the standard suite of packages used by that organisation.	The organisation has the full range of lifting and loading equipment needed for the standard suite of packages used by that organisation.	The organisation has the full range of lifting and loading equipment needed for the standard suite of packages used by that organisation. The organisation has some lifting and loading capability for non-standard packages.	The organisation has the full range of lifting and loading equipment needed for the full suite of packages (standard and non-standard) used by that organisation.
PT7 - Disposal vs. diversion (packaging)	The packaging fleet is focussed on disposal - there are no packages available suitable or available for diversion.	The majority of the packaging fleet is focussed on disposal. A minimal number of packages are available for diversion.	The packaging fleet used by the organisation is balanced between waste diversion and waste disposal.	The majority of the packaging fleet is focussed on diversion. A minimal number of packages are available for disposal.	The packaging fleet is focussed on waste diversion.
PT8 - Transport – road vs rail	No consideration of the use of rail. All waste shipments are made via road or sea / road.	Road is used in preference to rail transport but there is some consideration of the use of rail. There is some evidence of the use of rail for transport of LLW.	The use of rail is optimised where feasible (i.e. has been considered and is used where appropriate and available).	There is evidence that rail is used (where available and appropriate) in preference to road. A significant proportion of waste is transported by rail (where available).	There is evidence that rail is used in preference to road (where appropriate and available). All waste that can be transported by rail is transported by rail.
PT9 - Packaging decision making	Packaging is not considered in the waste management planning cycle and late decisions are made.	Packaging is considered in an ad-hoc manner in the waste management planning cycle. Decisions on packaging are made relatively late. There is some repackaging of waste.	Packaging is a consideration in the waste management planning cycle. Decisions on packaging are made as early as possible. Repackaging is minimised as far as practicable.	Packaging is a consideration in the waste management planning cycle. Some BAT assessments demonstrate consideration of packaging requirements. Decisions on packaging are made as early as possible. Repackaging is minimised.	Packaging requirements are discretely considered in the waste management planning cycle. Lifecycle BAT assessments are in place that underpin the use of the standard packaging fleet. Early decisions on waste packaging are made. There is no evidence for the repackaging of waste prior to treatment and / or disposal.
PT10 - SQEP capability	Personnel are not SQEP to undertake packaging or transport. There is no evidence of competency in the development of Waste Loading Plans.	Some personnel involved in the management of LLW are SQEP for packaging (loading / unloading as required) and transport. There is limited evidence of competency in the development of Waste Loading Plans.	Key personnel involved in the management of LLW are SQEP for packaging (loading / unloading as required) and transport. There is some evidence of competency in the development of Waste Loading Plans.	Most personnel involved in the management of LLW are SQEP for packaging (loading / unloading as required) and transport. There is some evidence of competency in the development of Waste Loading Plans.	All personnel involved in the management of LLW are SQEP for packaging (loading / unloading as required) and transport. There is demonstrable competence in the development of Waste Loading Plans.
PT11 - Transport arrangements	Transport arrangements are ad-hoc and cause delays.	The organisation has access to a range of different transport services which are required for their wastestreams. Some transport arrangements ad-hoc and there may be delays to transport.	The organisation has access to the range of transport services which are required for their wastestreams. Procedures are in place to ensure that transport services are available where scheduled.	The organisation has access to a range of transport services beyond those which are required for their wastestreams. Procedures are in place to ensure that transport services are available where scheduled.	The organisation has access to the full range of transport services. Procedures are in place to ensure that transport services are available where scheduled.
PT12 - Transport schedules	No standard schedule for transport of LLW - waste is consigned in a reactive manner.	There is evidence at an attempt of scheduling the transport of LLW. Waste consignments are predominantly reactive.	There is a standard schedule for the transport / transfer of LLW from the organisation.	There is a standard schedule for the transport / transfer of LLW from the organisation. There is some aggregation of waste shipments.	There is a standard schedule for the transport / transfer of LLW from the organisation. Waste shipments are aggregated as far as practicable.
PT13 - Understanding of packaging / transport decisions	Personnel demonstrate no awareness of why certain packages or transport methods are used.	Some personnel demonstrate an awareness of why certain packages or transport methods are used.	Personnel from the organisation directly involved in the management of LLW are aware as to why certain packages and transport methods are used.	Personnel from the organisation directly involved in the management of LLW are aware as to why certain packages and transport methods are used. People seek to identify and implement improvement opportunities relating to the packaging and transport of LLW.	A cross-section of personnel from the organisation are aware as to why certain packages and transport methods are used. People seek to identify and implement improvement opportunities relating to the packaging and transport of LLW.
PT14 – Innovation (e.g. packing method, package types etc.)	There is no evidence of innovation in the use of standard and non-standard packages.	There is some evidence of innovation in the use of standard packages.	There is evidence of innovation in the use of standard packages.	There is evidence of innovation in the use of standard packages. There is some evidence of innovation in the use of non-standard packages.	There is evidence of innovation in the use of standard and non-standard packages.
PT15 - Accident management / recovery	The organisation has no procedures in place for recovery / accident management relating to the transport of radioactive waste from standard packages.	The organisation has some procedures in place for recovery / accident management relating to the transport of radioactive waste from standard packages.	The organisation has robust procedures in place for recovery / accident management relating to the transport of radioactive waste from standard packages.	The organisation has robust procedures in place for recovery / accident management relating to the transport of radioactive waste for all packages.	The organisation has robust procedures in place for recovery / accident management relating to the transport of radioactive waste for all packages. The organisation is a member of RADSAFE.

Scoring Matrix – People and People Organisation

Keyword	1	2	3	4	5
PE1 - Organisational structure	The organisational structure for the organisation does not identify the personnel within the organisation with responsibility for LLW management.	The organisational structure for the organisation identifies some personnel within the organisation with responsibility for LLW management. There is little understanding in the rest of the organisation of who is responsible for LLW management.	There is a clearly defined organisational structure which identifies the key personnel within the organisation that are responsible for management of LLW. This is available to most personnel across the organisation.	There is a clearly defined organisational structure which identifies the personnel within the organisation that are responsible for management of LLW. This is available to all personnel across the organisation and there is some understanding of who is responsible for LLW management at that organisation.	There is a clearly defined organisational structure which identifies personnel within the organisation that are responsible for management of LLW. This is available to personnel across the organisation. A cross-section of people across the organisation are aware of who is responsible for LLW management.
PE2 - Roles and responsibilities	Roles and responsibilities for all individuals directly involved in the management of LLW are not defined.	Roles and responsibilities for some individuals directly involved in the management of LLW are defined. There is no clear linkage to organisations goals and objectives.	Roles and responsibilities for most individuals directly involved in the management of LLW are defined. There is some linkage to organisations goals and objectives.	Roles and responsibilities for all individuals directly involved in the management of LLW are defined. There is some linkage to organisations goals and objectives.	Roles and responsibilities for all individuals directly involved in the management of LLW are clearly defined. There is line-of-sight to the goals and objectives of the organisation.
PE3 - LLW management culture - ownership	The culture of the organisation is such that waste management is not seen to be the responsibility or priority for anyone.	The culture of the organisation is such that waste management is seen to be the responsibility only for those personnel directly involved in LLW management. The culture of the organisation does not acknowledge LLW management to be a priority.	The culture of the organisation is such that waste management is seen to be the responsibility and priority only for those personnel directly involved in LLW management.	The culture of the organisation is such that waste management is seen predominantly to be the responsibility and priority only for those personnel directly involved in LLW management, although there is evidence that others have an understanding of the need for effective waste management. There is some evidence that personnel not directly involved in LLW management take responsibility for LLW management performance.	The culture of the organisation is such that waste management is seen as a responsibility of every individual.
PE4 - Personnel motivation	Personnel are not motivated to achieve corporate goals and targets relating to LLW management.	Some personnel are motivated to achieve corporate goals and targets relating to LLW management; but generally, LLW management is seen as a low-value and low-priority area.	There is demonstrable evidence that personnel directly involved in the management of LLW at the organisation are motivated to achieve corporate goals and objectives relating to LLW management.	There is demonstrable evidence that most personnel at all levels at the organisation are motivated to achieve corporate goals and objectives relating to LLW management.	There is demonstrable evidence that personnel at all levels at the organisation are motivated to achieve corporate goals and objectives relating to LLW management. Personnel are empowered to make improvements to support achieving these goals.
PE5 - Reward and recognition	There is no programme for reward or recognition of personnel suggesting improvements to LLW management practices.	Some personnel directly involved in LLW management are rewarded and recognised for contributions they make in improving the LLW management performance of the organisation.	Personnel directly involved in LLW management are rewarded and recognised for contributions they make in improving the LLW management performance of the organisation.	Most personnel across the organisation are rewarded and recognised for contributions they make in improving the LLW management performance of the organisation.	Personnel across the organisation are rewarded and recognised for contributions they make in improving the LLW management performance of the organisation.
PE6 - Individual / team priorities and goals	Priorities for teams and individuals, with respect to LLW management, are generally not well established; and have little relation to corporate goals and priorities.	Priorities for some teams and individuals, with respect to LLW management, are established periodically. There is some alignment with corporate goals and priorities.	Priorities for teams and individuals, with respect to LLW management, are established periodically and generally align with corporate goals and priorities.	Priorities for teams and individuals, with respect to LLW management, are established periodically and align with corporate goals and priorities. There are ad-hoc arrangements to establish and track measures of performance.	Priorities for teams and individuals, with respect to LLW management, are established periodically and align with corporate goals and priorities. Meaningful and quantifiable measures of performance are established and tracked.
PE7 - Understanding of waste management (leaders)	Leaders do not have a demonstrable understanding of the strategy and corporate goals and priorities for LLW management.	Some leaders have a demonstrable understanding of the strategy and corporate goals and priorities for LLW management.	All leaders directly involved in waste management and some other leaders have a demonstrable understanding of the strategy and corporate goals and priorities for LLW management.	All leaders directly involved in waste management and most other leaders have a demonstrable understanding of the strategy and corporate goals and priorities for LLW management.	Leaders have a demonstrable understanding of the strategy and corporate goals and priorities for LLW management.
PE8 - Reinforcement of positive waste management behaviours (leaders)	Leaders do not positively reinforce appropriate and positive waste management behaviours from their employees.	Leaders occasionally positively reinforce appropriate and positive waste management behaviours from their employees.	Leaders often reinforce appropriate and positive waste management behaviours from their employees.	Leaders mostly reinforce appropriate and positive waste management behaviours from their employees.	Leaders positively reinforce appropriate and positive waste management behaviours from their employees.

Scoring Matrix – Policies and Strategies

Keyword	1	2	3	4	5
PS1 - Policies and strategies for LLW management	Policies and strategies relating to LLW management are non-existent, immature or not current.	Some policies and strategies relating to LLW management are live and current.	Policies and strategies (at an organisational level) relating to LLW management are live and current.	Policies and strategies (at an organisational level) relating to LLW management are live and current. There are some policies / strategies at a local level.	Policies and strategies (organisational and local) relating to LLW management are live and current.
PS2 - LLW strategy	The organisation has no LLW strategy.	The organisation has an IWS which references LLW management approaches.	The organisation has a discrete LLW strategy.	The organisation has a defined LLW strategy which is integrated with the IWS.	The organisation has a defined and detailed LLW strategy which is integrated with the IWS.
PS3 - Line-of-sight of LLW strategy to National LLW Strategy	Awareness of national strategy at management level but no cascade to organisational strategy.	Organisational strategy being developed or is immature. The strategy does not cascade well from national strategy.	Organisational strategies exist but do not cascade to plant level or minimal line of sight from national strategy.	Line of sight cascades to site / OU level but minimal evidence of links to plant procedures.	Clear line of sight from national strategy to organisational strategy to site strategy to plant procedures. These are complementary to each other.
PS4 - Support given by facility arrangements to LLW strategy delivery	Facility arrangements do not reinforce strategy delivery.	Facility arrangements do not completely reinforce strategy delivery.	Facility arrangements reinforce strategy delivery.	Facility arrangements reinforce strategy delivery and enable personnel to optimise strategy delivery.	Facility arrangements enable strategy delivery to be optimised.
PS5 - Goals / targets for LLW management	No LLW management goals.	The organisation has some clear goals relating to the management of LLW. These are understood by some of those directly involved in the management of LLW.	The organisation has clear goals relating to the management of LLW. These are understood by those directly involved in the management of LLW.	The organisation has clear goals relating to the management of LLW, some of which have cascaded to a local level. These are understood by those directly involved in the management of LLW and some personnel not directly involved.	The organisation has clear goals relating to the management of LLW. These are understood by a cross-section of personnel at the organisation.
PS6 - LLW Management KPIs	No KPIs relating to LLW management.	The organisation has established a limited range of KPIs to reinforce goals. These may not be kept up to date. There is limited evidence that there is a process for tracking and remediation of performance when required.	The organisation has established KPIs to reinforce goals, which are communicated and kept up to date. There is evidence that there is a process for tracking and remediation of performance when required.	The organisation has established KPIs to reinforce goals, which are communicated and kept up to date. There is evidence that there is a process for tracking and remediation of performance when required.	Intelligent KPIs established to reinforce goals, are communicated and kept up-to-date. There is evidence that there is a process for tracking and remediation of performance when required.
PS7 - Support given by organisational values to LLW strategy delivery	Values do not underpin UK LLW strategy.	Values for the SLC partially underpin the UK LLW strategy and local LLW strategies.	Values for the SLC underpin UK and local LLW strategy.	Values for the SLC underpin UK and local LLW strategy. Some values of the organisation underpin UK and local LLW strategy.	Values for the organisation underpin UK and local LLW strategy.
PS8 - Communication of LLW strategy	No evidence of communication relating to UK strategy.	There is evidence of some communications relating to the LLW strategy within the organisation.	Communications (within the organisation) underpin understanding of the LLW strategy.	Communications (within the organisation) underpin understanding of strategy. Some communications on LLW management are made across the organisation.	Communications (across the organisation) underpin understanding of strategy.
PS9 - Personnel awareness of LLW strategy	People have no awareness of the goals of the strategy.	Some people directly involved with the management of LLW demonstrate an awareness of the goals of the strategy.	People directly involved with the management of LLW demonstrate an awareness of the goals of the strategy.	People directly involved with the management of LLW demonstrate an awareness of the goals of the strategy. This awareness is shown by some personnel not directly involved in LLW management.	A cross-section of people across the organisation demonstrate that they understand and are engaged in the strategy.
PS10 - Risk management process	No risk management process relating to LLW management.	There is an ad-hoc risk management process relating to LLW management practices.	Risk management is undertaken routinely at a site or organisational level; this may include some LLW risks.	Risk management is undertaken routinely at a site or organisational level; this directly includes LLW risks.	Risk management is undertaken routinely at a site or organisational level; this directly includes LLW risks on a tactical and strategic level.

Scoring Matrix - Storage

Keyword	1	2	3	4	5
ST1 - Labelling of wastes and waste storage areas	No wastes are labelled. Waste storage areas do not have any inventory information.	Some wastes are labelled. Some waste storage areas are labelled with information about the waste inventory stored within.	All wastes and waste storage areas are labelled.	All wastes and waste storage areas are labelled. Some wastes are labelled so as to enable tracking (e.g. bar-coded and linked to a live inventory management system).	Wastes are labelled (e.g. bar-coded) and the labelling is linked to the live inventory management system. There is labelling of waste storage areas.
ST2 - Housekeeping of waste storage areas	Housekeeping of waste storage areas is poor - area is untidy and hazards are apparent.	Housekeeping of waste storage areas is poor but there is evidence of improvement activities.	Housekeeping of waste storage areas is adequate	Housekeeping of waste storage areas is adequate but there is evidence of improvement activities.	Housekeeping of waste storage areas is excellent. The area is well ordered and tidy.
ST3 - Waste storage area provision	There are no dedicated waste storage areas defined. Waste is not stored under cover. There is potential for "fly-tipping" of waste.	Some dedicated waste storage areas are defined and arrangements are in place to minimise the potential for "fly-tipping" etc. Efforts are made to store waste under cover.	Dedicated, secure waste storage areas are defined. Waste is - as far as practicable - stored under cover.	Dedicated, secure waste storage areas are defined. Waste is stored under cover.	There is a dedicated engineered waste storage facility. Waste is stored under cover and in a secure environment.
ST4 - Improvement plans	There is no process to identify and implement improvement opportunities for waste storage.	Some improvement opportunities for waste storage are identified and are implemented in an ad-hoc manner.	Some improvement opportunities for waste storage are identified and are implemented in an ad-hoc manner. There is evidence of some "programisation" of improvement activities.	Improvement opportunities for waste storage are identified and there is a programme of work to implement these improvements.	Improvement opportunities for waste storage are identified and there is a programme of work to implement these improvements. Personnel identifying improvements are empowered - where appropriate - to implement them.
ST5 - Personnel awareness of value of effective waste storage practice	Personnel directly involved in the management of LLW do not demonstrate an understanding of the underpinning reasons for effective waste storage arrangements.	Some personnel directly involved in the management of LLW do not demonstrate an understanding of the underpinning reasons for effective waste storage arrangements.	Personnel directly involved in the management of LLW demonstrate an understanding of the underpinning reasons for effective waste storage arrangements.	Personnel directly involved in the management of LLW demonstrate an understanding of the underpinning reasons for effective waste storage arrangements. There is some understanding from personnel not directly involved in LLW management.	A cross-section of personnel from the organisation demonstrate an understanding of the underpinning reasons for effective waste storage arrangements.
ST6 - Accumulation vs. treatment and disposal	Large volumes of waste are being accumulated rather than transferred for treatment and / or disposal.	Most wastes are being accumulated rather than being transferred for treatment and / or disposal.	Some wastes are being accumulated rather than being transferred for treatment and / or disposal.	A minimal volume of waste is being accumulated - a larger volume of waste is rapidly transferred for treatment and / or disposal.	There is evidence of a rapid turnover of waste to diversion or disposal - significant volumes of waste are not accumulated. "Storage volumes" are assessed to optimise aggregated treatment opportunities.
ST7 - Storage of legacy, unknown and problematic wastes	A significant quantity of legacy / unknown items are in storage. These are not confined within defined storage areas, are poorly labelled and are not within the inventory for the organisation.	A significant quantity of legacy / unknown items are in storage. Most are confined within defined storage areas, are labelled and are within the inventory for the organisation.	Some legacy / unknown items are in storage. These are retained in defined storage areas, are clearly labelled and are within the inventory for the organisation.	A minimal quantity of legacy / unknown items are in storage. These are retained in defined storage areas, are clearly labelled and are within the inventory for the organisation.	There are no legacy / unknown items in storage.

Scoring Matrix – Training and Qualification

Keyword	1	2	3	4	5
TQ1 - Role descriptions, competency frameworks and training profiles	There are no role descriptions, competency frameworks and training profiles for key roles related to LLW management at the organisation. Some of these elements may not exist.	There are (in some form) role descriptions, competency frameworks and training profiles for some key roles related to LLW management at the organisation. Some of these elements may not exist. There is no clear line-of-sight between these documents.	There are role descriptions, competency frameworks and training profiles for some key roles related to LLW management at the organisation. There is clear line-of-sight between these documents.	There are role descriptions, competency frameworks and training profiles for most key roles related to LLW management at the organisation. There is clear line-of-sight between these documents.	There are role descriptions, competency frameworks and training profiles for all key roles related to LLW management at the organisation. There is clear line-of-sight between these documents.
TQ2 - Relevance and validity of training and instruction materials	Relevant training and instruction materials are not kept up-to-date. Such materials do not reflect current applicable legislation or best practice.	Some relevant training and instruction materials are kept up-to-date and reflect current applicable legislation. There is a commitment to update any materials that are not fit-for-purpose.	Relevant training and instruction materials are mostly kept up-to-date and reflect current applicable legislation.	Relevant training and instruction materials are mostly kept up-to-date and reflect current applicable legislation and corporate requirements.	Relevant training and instruction materials are kept up-to-date and reflect current applicable legislation, corporate requirements and best practice.
TQ3 - Waste management training (those involved in LLW management directly)	Few personnel directly involved in LLW management have received the appropriate training and instruction to enable them to carry out their roles compliantly, safely and effectively. Training is narrowly focussed on specific phases of the LLW management lifecycle. The refreshing of training has been undertaken in an ad-hoc manner. There is no evidence of training on waste management to other site personnel.	Most personnel directly involved in LLW management have received the appropriate training and instruction to enable them to carry out their roles compliantly, safely and effectively. Training encompasses different phases of the LLW management lifecycle as appropriate commensurate with the role. This training has been periodically refreshed as required. There is little evidence of training on waste management to personnel not directly involved in LLW management.	All personnel directly involved in LLW management have received the appropriate training and instruction to enable them to carry out their roles compliantly, safely and effectively. Training encompasses different phases of the LLW management lifecycle as appropriate commensurate with the role. This training has been periodically refreshed as required. There is evidence that some personnel not directly involved in LLW management have received training on waste management.	All personnel directly involved in LLW management have received the appropriate training and instruction to enable them to carry out their roles compliantly, safely and effectively. There is evidence of cross-training (i.e. training encompasses most phases of the LLW management lifecycle as appropriate). This training has been periodically refreshed as required. Most personnel not directly involved in LLW management have received training on waste management.	All personnel directly involved in LLW management have received the appropriate training and instruction to enable them to carry out their roles compliantly, safely and effectively. Training encompasses all phases of the LLW management lifecycle as appropriate. This training has been periodically refreshed as required. All personnel have received some level of training on waste management
TQ4 - Scope of training and instruction on LLW management	Training and instruction for personnel at the organisation is limited to process compliance and corporate policy / strategy and objectives. There is evidence - in the understanding of the personnel - that this training has been ineffective in terms of learning with respect to the Waste Hierarchy.	Training and instruction for personnel at the organisation includes reference to Waste Hierarchy and corporate policy / strategy and objectives. There is evidence - in the understanding of the personnel - that this training has been ineffective.	Training and instruction for personnel at the organisation includes reference to the Waste Hierarchy, corporate policy / strategy and objectives and reasoning for need for effective LLW management practice. There is evidence - in the understanding of the personnel - that this training has been effective.	Training and instruction for personnel at the organisation includes reference to the Waste Hierarchy, corporate policy / strategy, corporate goals and objectives and reasoning for need for effective LLW management practice. There is evidence - in the understanding of the personnel - that this training has been effective.	Training and instruction for personnel at the organisation includes reference to the Waste Hierarchy, basic themes of the National LLW Strategy, corporate policy / strategy, corporate goals and objectives and reasoning for need for effective LLW management practice. There is evidence - in the understanding of the personnel - that this training has been effective.
TQ5 - Support for training on LLW management by leaders	There is no evidence that leaders demonstrate commitment and support for training relating to LLW management / general waste management.	There is evidence that leaders demonstrate inconsistent commitment and support for training relating to LLW management / general waste management.	There is evidence that some leaders demonstrate commitment and support for training relating to LLW management / general waste management.	There is evidence that most leaders demonstrate commitment and support for training relating to LLW management / general waste management.	There is evidence that all leaders demonstrate commitment and support for training relating to LLW management / general waste management.
TQ6 - Culture of training and learning	There is no / limited evidence that the training and learning culture in the organisation engages some leaders and employees to identify problems, generate ideas for training and identify training needs.	There is evidence that the training and learning culture in the organisation engages some leaders and employees to identify problems, generate ideas for training and identify training needs. These improvements are occasionally translated into improvements in the training and learning process.	There is evidence that the training and learning culture in the organisation engages most leaders and employees to identify problems, generate ideas for training and identify training needs. These improvements are occasionally translated into improvements in the training and learning process.	There is evidence that the training and learning culture in the organisation engages leaders and employees to identify problems, generate ideas for training and identify training needs. These improvements are mostly translated into improvements in the training and learning process.	There is evidence that the training and learning culture in the organisation engages and empowers leaders and employees to identify problems, generate ideas for training and identify training needs. There is evidence that these improvement activities are effective.

Scoring Matrix – Waste Consignment

Keyword	1	2	3	4	5
WC1 – Processes and Procedures	No / limited processes and procedures in place for waste consignment off-site. Limited evidence of layers of defence against mis-consignment.	Some processes and procedures in place that cover waste consignment off-site. There are few layers of defence to mis-consignment of waste.	Processes and procedures are in place that cover waste consignment off-site. There are barriers and protections in place to defend against mis-consignment of waste.	Good processes and procedures are in place for the off-site consignment of waste. There are several barriers and layers of defence to the mis-consignment of waste.	Robust processes and procedures for the off-site consignment of waste are in place (e.g. inspection of loads, verification of records, verification monitoring). There are multiple layers of defence against mis-consignment of waste.
WC2 - Characterisation	Note – covered by Characterisation Scoring Matrix (where applicable to scope of Peer Review)	Note – covered by Characterisation Scoring Matrix (where applicable to scope of Peer Review)	Note – covered by Characterisation Scoring Matrix (where applicable to scope of Peer Review)	Note – covered by Characterisation Scoring Matrix (where applicable to scope of Peer Review)	Note – covered by Characterisation Scoring Matrix (where applicable to scope of Peer Review)
WC3 – Facilities and equipment	There is limited infrastructure, facilities and equipment in place to enable robust off-site consignment of waste.	Some infrastructure, facilities and equipment is in place to enable robust off-site consignment of waste. These are appropriately functionally tested, calibrated and maintained.	Sufficient infrastructure, facilities and equipment is in place to enable robust off-site consignment of waste. These are appropriately functionally tested, calibrated and maintained. There is no defined waste despatch area for the site.	Sufficient infrastructure, facilities and equipment is in place to enable robust off-site consignment of waste. These are appropriately functionally tested, calibrated and maintained. There is a virtual central despatch area for the site.	A robust range of infrastructure, facilities and equipment is in place to enable robust off-site consignment of waste. These are appropriately functionally tested, calibrated and maintained. There is a physical central despatch area for the site.
WC4 – Verification Monitoring	No or very limited verification monitoring is undertaken.	Some verification monitoring is undertaken; but this does not include independently undertaken verification monitoring.	A programme of verification monitoring is undertaken; but this does not include independently undertaken verification monitoring.	Elements of verification monitoring are undertaken routinely as part of the waste consignment process. A programme of verification monitoring is undertaken; and this involves some verification monitoring being undertaken by independent parties.	Verification monitoring is a routine part of the waste consignment process. A robust, defined programme of independent verification monitoring is undertaken to support this.
WC5 – Records and record verification	Records for waste items / populations for off-site consignment are fragmented, disparate and incomplete. These are not kept up-to-date in real time. Records are not routinely reviewed in the waste consignment process.	Records for waste items / populations for off-site consignment are numerous and fragmented; but there is evidence that these are kept up-to-date. Records are reviewed in the waste consignment process.	There is a defined set of records relating to waste items / populations across their lifecycle; which are kept up-to-date in real time. There is evidence that these records are checked as part of the waste consignment process.	There is a defined set of records relating to waste items / populations across their lifecycle; which are kept up-to-date in real time. There is evidence that these records are routinely checked against characterisation records and other information sources as part of the waste consignment process.	There is a single record relating to waste items / populations across their lifecycle; which are kept up-to-date in real time. There is evidence that these records are routinely checked against characterisation records and other information sources as part of the waste consignment process.
WC6 – Information Tools	No schedule of waste consignments or use of waste tracking system. Information pertaining to the consignment of waste off-site is disparate and fragmented.	There is some evidence of the use of scheduling and waste tracking systems to consolidate information pertaining to off-site consignments. This may be limited in scope and / or not kept up-to-date.	Schedules or waste tracking systems are used to consolidate information on wastes to be consigned off-site.	Schedules and waste tracking systems are used to consolidate information on wastes to be consigned off-site.	Schedules and real-time waste tracking systems are used to consolidate information on wastes across their lifecycle.
WC7 – Audit and assurance	No or limited audit and assurance activities are undertaken relevant to off-site waste consignment.	Ad-hoc audit and assurance is undertaken relating to off-site waste consignment (e.g. in response to events). There is no defined programme of audit and assurance activities.	Audit and assurance activities relating to off-site waste consignment in a programmed and systematic manner. Learning from these activities is fed into improvements in processes and arrangements.	A specific programme of audit and assurance activities related to off-site consignment of waste is undertaken. Learning from such activities is fed into process and arrangement improvements.	A robust and specific programme of audit and assurance activities related to off-site consignment of waste (including activities undertaken by external, independent parties) is undertaken. Learning from such activities is fed into process and arrangement improvements.
WC8 – Awareness of personnel	Personnel do not demonstrate an understanding of the risks and implications of mis-consignment of waste.	Some personnel directly involved in the management of LLW demonstrate a good understanding of the risks and implications of the mis-consignment of waste.	All personnel directly involved in LLW management show a good understanding of the risks and implications of the mis-consignment of waste.	All personnel directly involved in LLW management and a cross-section of other personnel demonstrate a good understanding of the risks and implications of the mis-consignment of waste.	All personnel demonstrate a good understanding of the risks and implications of the mis-consignment of waste.
WC9 – SQEP	There are deficiencies in the SQEP and process understanding of personnel involved in off-site consignment. Roles and responsibilities are not defined.	Some personnel involved in off-site consignment are SQEP. There is some understanding of the process of off-site consignment. Some roles and responsibilities are defined.	Personnel involved in off-site waste consignment are SQEP and demonstrate a good understanding of the process. All key roles and responsibilities are defined.	Personnel involved in off-site waste consignment are SQEP and demonstrate a good understanding of the process and barriers to mis-consignment. Most roles and responsibilities are defined.	Personnel involved in off-site waste consignment are SQEP and demonstrate a good understanding of the process and barriers to mis-consignment. All roles and responsibilities are defined.
WC10 - Leadership	Leaders do not demonstrate an understanding of the risks and implications of mis-consignment of waste. There is a negative waste management culture.	Most leaders directly involved in LLW management demonstrate an understanding of the risks and implications of waste mis-consignment. Elements of a positive waste management culture are reinforced.	Leaders involved in LLW management demonstrate a good understanding of the risks and implications of waste mis-consignment. A positive waste management culture is reinforced.	All leaders involved in LLW management and a cross-section of other leaders demonstrate a good understanding of the risks and implications of waste mis-consignment, and the barriers to prevent it. A positive waste management culture is reinforced.	All leaders demonstrate a good understanding of the risks and implications of waste mis-consignment, and the barriers to prevent it. A positive waste management culture is reinforced.
WC11 – Information sharing and improvement culture	No or limited evidence of sharing of information and LFE with others relating to waste consignment arrangements. There is no or limited evidence of an improvement culture relating to waste consignment arrangements.	Some evidence of LFE sharing on waste consignment arrangements to a limited group. There is some evidence of improvements to waste consignment arrangements based on learning.	The waste producer shares and receives LFE on waste consignment with others. There is evidence that learning from this is incorporated into improved arrangements.	The waste producer widely shares LFE and good practice on off-site consignment with others. Learning is used to improved consignment arrangements.	There is evidence of a proactive approach to sharing and seeking LFE / good practices on waste consignment practices. The waste producer proactively seeks ways to improve their arrangements.

Scoring Matrix – Waste Management Operations

Keyword	1	2	3	4	5
WMO1 - Awareness of LLW management arrangements and rationale	LLW management operations personnel demonstrate limited knowledge of the need for sort / segregation of waste, the available waste routes, applicable WAC etc.	LLW management operations personnel demonstrate some knowledge of the need for sort / segregation of waste, the available waste routes, applicable WAC etc.	LLW management operations personnel demonstrate a working-level knowledge of the need for sort / segregation of waste, the available waste routes, applicable WAC etc.	LLW management operations personnel demonstrate good knowledge of the need for sort / segregation of waste, the available waste routes, applicable WAC etc.	LLW management operations personnel have a detailed understanding of available waste routes, WAC for different facilities and different waste route requirements. The facility / site proactively explores with service providers the potential for flexibility within their WAC and there is evidence that such flexibility is exploited by the organisation.
WMO2 - Availability of specialist support network	There is no specialist support available.	Some specialist support is available.	A specialist support network is available to call on.	A specialist support network is available to call on. Some specialist resource is dedicated to LLW management operations.	A dedicated support network is available to support LLW management operations.
WMO3 - Infrastructure, facilities and capability for LLW management	There is no infrastructure / facilities / capability available to support waste management activities (including sort and segregation).	Some infrastructure / facilities / capabilities are available to support waste management activities (including sort and segregation), but some key aspects are missing and arrangements are ad-hoc.	There are dedicated areas for waste management activities including appropriate infrastructure / facilities / capability. There are constraints on the dedicated areas such as space, throughput, packaging capacity etc.	There are dedicated areas for waste management activities including appropriate infrastructure / facilities / capability. There are some constraints on the dedicated areas such as space, throughput, packaging capacity etc.	Either a dedicated engineered waste facility for sort / segregation / storage that does not constrain activities is available or sort and segregation of waste is carried out at-source. Optimised operational arrangements are used to support effective LLW management operations.
WMO4 - SQEP capability	There is limited evidence that waste management practitioners are suitably trained and SQEP.	There is evidence that some waste management practitioners are suitably trained and SQEP.	Waste management practitioners are trained and SQEP for standard waste management activities.	Waste management practitioners are trained and SQEP for a wide range of waste management activities (including some non-standard activities).	Waste management practitioners are trained and SQEP for the full range of waste management activities.
WMO5 - Interaction of LLW management activities into projects	LLW management is not integrated into project schedules - waste management is not seen as part of the operations / decommissioning process. There is no integration of waste management and project personnel.	LLW management is not integrated into project schedules but there is recognition that it should be.	LLW management is integrated into project schedules but generally at a later stage of the project lifecycle. Opportunities for sort / segregation and waste diversion are precluded as a result of this. There is some integration of waste management and project personnel.	LLW management is integrated into project schedules but at an earlier stage of the project lifecycle. There are more opportunities for sort / segregation and waste diversion as a result.	LLW management is fully integrated into project schedules at the earliest practicable phase of the project. There is good integration of waste management and project personnel.
WMO6 - Culture of improvements	There is no process to identify and implement improvement opportunities for waste management operations.	Some improvement opportunities for waste management operations are identified and are implemented in an ad-hoc manner.	Some improvement opportunities for waste management operations are identified and are implemented in an ad-hoc manner. There is evidence of some programming of improvement activities.	Improvement opportunities for waste management operations are identified and there is a programme of work to implement these improvements.	Improvement opportunities for waste management operations are identified and there is a programme of work to implement these improvements. Personnel identifying improvements are empowered - where appropriate - to implement them
WMO7 - Awareness of need for effective LLW management	Personnel directly involved in the management of LLW do not demonstrate an understanding of the underpinning reasons for effective waste management arrangements.	Some personnel directly involved in the management of LLW do not demonstrate an understanding of the underpinning reasons for effective waste management arrangements.	Personnel directly involved in the management of LLW demonstrate an understanding of the underpinning reasons for effective waste management arrangements.	Personnel directly involved in the management of LLW demonstrate an understanding of the underpinning reasons for effective waste management arrangements. There is some understanding from personnel not directly involved in LLW management.	A cross-section of personnel from the organisation demonstrate an understanding of the underpinning reasons for effective waste management arrangements.
WMO8 - Arrangements for LLW management	There is no evidence of process flow / management arrangements for waste management operations.	There is some evidence of process flow / management arrangements for waste management operations.	Full process flow / management arrangements in place for all standard waste routes (i.e. for high volume waste routes).	Full process flow / management arrangements in place for all standard waste routes (i.e. for high volume waste routes) and some other waste routes.	Full process flow / management arrangements in place for all waste routes.
WMO9 - Housekeeping of waste management operation areas	Housekeeping of waste management operation areas is poor - area is untidy and hazards are apparent.	Housekeeping of waste management operation areas is poor but there is evidence of improvement activities.	Housekeeping of waste management operation areas is adequate	Housekeeping of waste management operation areas is adequate but there is evidence of improvement activities.	Housekeeping of waste management operation area is excellent.

Scoring Matrix – Waste Routes and Waste Route Decision Making

Keyword	1	2	3	4	5
WR1 – Environmental Permit / Authorisation	Environmental Permit / Authorisation is constrained (no access to alternative routes / diversion).	The Environmental Permit / Authorisation for the facility / site enables the use of some waste diversion routes but there are constraints on activity, volume and / or supplier.	The Environmental Permit / Authorisation enables the use of most waste diversion routes but there are constraints on activity, volume and / or supplier for some routes.	The Environmental Permit enables the use of all waste diversion routes but there are constraints on activity, volume and / or supplier for some routes.	The Environmental Permit enables the use of all waste diversion routes with no constraints.
WR2 - Waste re-classification	No evidence of use of waste re-classification (LLW/VLLW → out-of-scope / exempt; LLW → VLLW; ILW → LLW)	There is some evidence of waste re-classification (LLW/VLLW → out-of-scope / exempt; LLW → VLLW; ILW → LLW)	There is evidence that waste re-classification (LLW/VLLW → out-of-scope / exempt; LLW → VLLW; ILW → LLW) is undertaken routinely but for small volumes.	There is evidence that waste re-classification (LLW/VLLW → out-of-scope / exempt; LLW → VLLW; ILW → LLW) is undertaken routinely but for reasonable waste volumes.	There is evidence that waste re-classification (LLW/VLLW → out-of-scope / exempt; LLW → VLLW; ILW → LLW) is undertaken routinely but for optimised (maximum appropriate) waste volumes.
WR3 - Waste sorting and segregation	No evidence of waste segregation	There is some evidence of waste segregation. Waste segregation is undertaken on an ad-hoc basis.	There is evidence that waste segregation is undertaken routinely. Waste segregation is not necessarily effective.	Waste segregation is undertaken routinely and for a reasonable volume of waste.	Waste segregation is undertaken routinely and for an optimised (maximum appropriate) volume of waste.
WR4 - BAT / BPM	No BAT (BPM in Scotland) that is current and covers organisation LLW inventory.	Some BATs (BPM in Scotland) are in place covering a portion of the organisation LLW inventory. BAT is produced late in the waste lifecycle causing some options to be precluded.	The organisation has a suite of generic or strategic BAT (BPM in Scotland) assessments that cover all key (high-volume) wastestreams. There is a defined process for undertaking BAT assessments.	The organisation has a suite of generic or strategic BAT (BPM in Scotland) assessments that cover all wastestreams and some "waste population" level BAT assessments in place. There is a defined process for undertaking BAT assessments.	The organisation has a suite of generic or strategic BAT (BPM in Scotland) assessments that cover all wastestreams and a suite of "waste population" level BAT assessments in place. There is a defined process for undertaking BAT assessments.
WR5 - Improvement plans	No evidence of a programme to improve waste segregation and diversion performance.	There is evidence of some attempts to improve waste segregation and diversion performance. This is undertaken in an ad-hoc, unstructured manner.	There is evidence of activities to improve waste segregation and diversion performance. There is a limited programme for these improvements in place.	There is evidence of a structured programme for improvements in diversion and waste segregation performance.	There is evidence of an active and dynamic structured programme for improvements in diversion and waste segregation performance.
WR6 - Awareness of the Waste Hierarchy	There is negligible understanding or awareness of the Waste Hierarchy and waste diversion amongst personnel at the organisation.	There is evidence of understanding of the Waste Hierarchy amongst personnel directly involved in the management of LLW, but there is limited evidence of the application of this knowledge.	There is good evidence of understanding of the Waste Hierarchy amongst personnel directly involved in the management of LLW. There is evidence that this knowledge is applied (e.g. some evidence of waste minimisation, re-use etc.).	There is good evidence of understanding of the Waste Hierarchy amongst personnel directly involved in the management of LLW and some evidence of understanding amongst other personnel. There is evidence that this knowledge is applied.	There is good evidence of understanding of the Waste Hierarchy amongst a cross-section of personnel at the organisation. There is evidence that this knowledge is applied (e.g. strong evidence of waste minimisation, re-use etc.).
WR7 - Waste disposal vs. waste diversion	Organisational culture demonstrably encourages waste disposal over waste diversion.	Organisational culture encourages waste disposal over waste diversion, but acknowledges some benefits of waste diversion.	Organisational culture encourages waste disposal and waste diversion equally. There is no evidence of a preference between disposal and diversion, although there is evidence that the benefits of waste diversion are understood.	There is some evidence that the organisational culture encourages waste diversion over waste disposal.	There is strong evidence that the organisational culture encourages waste diversion over waste disposal.
WR8 - Waste management decision making factors	Cost and schedule drives waste management decision making.	Cost and schedule predominantly drives waste management decision making. There may be minimal consideration of other decision making factors.	Waste management decision making considers cost, schedule and a range of other decision making factors.	There is some evidence that waste management decision making - where appropriate - is driven by factors other than cost and schedule. There are some examples where the Organisational has sought to "do the right thing" by diverting even if it costs more.	There is strong evidence that waste management decision making - where appropriate - is driven by factors other than cost and schedule (i.e. routinely diverting LLW even if it costs more).
WR9 - Waste management plans	There is no evidence of waste management plans relating to LLW management at the organisation.	There is evidence that the organisation is considering production of a waste management plan (ad-hoc).	The organisation has a waste management plan that covers key (high volume) wastestreams.	The organisation has a waste management plan that covers most LLW wastestreams.	The organisation has a waste management plan that covers all LLW wastestreams.
WR10 - Waste route availability	No evidence of waste diversion – the organisation only undertakes waste disposal.	There is evidence that some waste diversion routes are used but for a constrained or restricted volume. The majority of waste is disposed of.	All waste diversion routes are open but some routes are used for constrained or restricted volumes. A significant volume of waste is managed by disposal.	All waste diversion routes are in use and a reasonable (but not optimal) volume of waste is being diverted.	All waste diversion routes are in use and a significant volume of waste is being diverted. There is limited waste disposal.

APPENDIX 1—Sample Peer Review Questions

This section provides a range possible exemplar questions to guide and direct preparation for interviews / discussions, plant visits and documentation reviews during the Peer Review process. This is not a “shopping list” of questions nor is an exhaustive list of potential questions / considerations.

CHARACTERISATION

- Describe how LLW is characterised on this plant / facility / site?
- Who is responsible for undertaking characterisation activities? How are these people trained / SQEP?
- What processes and procedures are in place for characterisation on this plant / facility / site?
- How does the characterisation process take account of waste routing?
- What characterisation data for the plant / facility / site is available? How is this data stored and maintained? Which people have access to it?
- What factors are considered in planning characterisation activities?
- How does the plant / facility / site schedule characterisation activities?

INVENTORY MANAGEMENT

- How is inventory data managed at the plant / facility / site?
- Who is responsible for managing the data?
- How is the inventory data technically underpinned?
- Who owns the inventory data? How is ownership of the data sets demonstrated?
- How are changes to the inventory data managed?
- How and when is waste forecasting undertaken?
- How is the accuracy of waste forecasting monitored?
- Why is inventory data important?
- How is inventory data used by the plant / facility / site?
- What level of correlation is there between data sets such as the UKRWI, WIF, JWMP and LTP? Forecasts and actuals?

LFE & ENGAGEMENT

- What processes and procedures do you use for capturing and sharing LFE?
- What processes and procedures do you use for capturing events / near misses related to LLW management?
- How is information on events / near misses or LFE shared with the waste management community at the plant / facility / site?
- How does your organisation trend events / near misses related to LLW management?
- How do waste practitioners identify and implement improvements to LLW management practice?
- How does the organisation encourage employees to identify and implement improvements to LLW management practice?
- What forums / groups does the LLW management community on this plant / facility / site engage with to share information on LLW management?
- What process do you use for audit and assurance of LLW management practice at this plant / facility / site?
- How does your organisation / site share LFE with other sites and organisations?
- How do you engage with stakeholders on LLW management issues?
- How do you measure how stakeholders believe you are performing?

PACKAGING AND TRANSPORT

- Which packages do you use for LLW?
- Which packages do you use for non-standard wastestreams?
- What processes and procedures are used for packaging and transport operations?
- How do you check the condition of LLW packages?
- How do you maintain LLW packages?
- What packaging, loading and lifting equipment do you use?
- What arrangements do you use for labelling packages?
- How do you decide what packaging and transport to use?
- When do you make packaging and transport decisions?
- Which personnel are involved in packaging and transport operations? How are these people trained and SQEP?
- Why do you use road over rail (or vice versa)?
- What transport services do you use?
- How would you respond to a packaging or transport emergency?

PEOPLE AND PEOPLE ORGANISATION

- How is the waste management team structured?
- How do other personnel on the plant / facility / site know who is involved in LLW management?
- What are the roles and responsibilities for role x? Where are these defined?
- Who is responsible for LLW management on this plant / facility / site?
- What are the site / organisations goals for LLW management? How are these translated into priorities and targets for teams / individuals?
- How does the organisation recognise and reward improvements to LLW management practice?

POLICIES AND STRATEGIES

- What policies and strategies does the site / organisation have for LLW management?
- How do the site / organisation policies and strategies relate to the national LLW strategy?
- How do the waste management arrangements used by the plant / facility / site allow the site policy and strategy to be implemented?
- What goals and targets does the site / organisation have for LLW management?
- How is progress against delivery of the goals / targets for LLW management measured?
- How is the site / organisation strategy and goals / targets communicated to personnel?
- What process is used for risk management? How are risks relating to LLW management recorded within this?

STORAGE

- What processes and procedures are in place for waste storage?
- How is LLW stored on your plant / facility / site?
- How are waste storage areas kept secure?
- What wastes (if any) are being accumulated?
- How do you manage to minimise waste accumulation on your plant / facility / site?
- How are legacy, unknown and problematic wastes stored?
- What expectations does the plant / site / organisation have for waste storage and labelling? How are these enforced?
- How could storage arrangements be improved? What action is the site / organisation taking to improve waste storage arrangements?

TRAINING & QUALIFICATION

- How does the plant / site / organisation train personnel not directly involved in LLW management on waste management?
- How does the plant / site / organisation train personnel directly involved in LLW management?
- What training and qualification structure (such as role descriptions, competency frameworks and training profiles) is in place for those involved in LLW management?
- How does the plant / site / organisation train contractors on LLW management?
- How are waste practitioners and managers engaged in developing, shaping and improving training related to LLW management?

WASTE CONSIGNMENT

- How does your plant / site consign waste off site?
- What infrastructure and equipment is available to support the off-site consignment of waste?
- What controls are in place to prevent the mis-consignment of waste?
- How do you use verification monitoring?
- What audit / assurance activities are carried out on waste consignment arrangements?
- What records are used for LLW? How are these checked when consigning waste off-site?
- How do you control what is being transferred off-site and to whom?
- Why do you control how waste is consigned off-site?
- What are the main risks of transferring the wrong waste off-site?
- What role do you play in preventing the wrong waste being transferred off-site?
- How do you seek to improve your waste consignment arrangements?

WASTE MANAGEMENT OPERATIONS

- What infrastructure and facilities are available to support LLW management?
- Which specialist services (such as Health Physics, characterisation, DGSA etc.) are available to support LLW management operations?
- What processes and procedures are in place to support LLW management operations?
- How are waste practitioners trained and SQEP for LLW management operations?
- How is the site / organisation improving LLW management operations?
- What are the expectations for housekeeping of waste management operations areas? How are these enforced?
- How does LLW management interact with projects?
- How do LLW waste practitioners interface with project managers?

WASTE ROUTE AVAILABILITY AND DECISION MAKING

- How does your site EPR Permit / RSA93 Authorisation constrain waste routes and routing decisions?
- How is waste segregation and waste sorting undertaken at your plant / facility / site?
- How is waste re-classification undertaken at your plant / facility / site?
- What BAT / BPM assessments do you have in place? How do these cover your waste inventory?
- How does your plant / facility / site apply the Waste Hierarchy?
- What is your plant / facility / site waste diversion performance?
- How is waste management planning undertaken on your plant / facility / site?
- What factors do you consider when making waste route decisions?
- How are you improving waste segregation and / or waste diversion performance?