

Waste and Nuclear Materials

Process for Developing a UK Nuclear-Industry Low Level Waste Strategy

Version 2 - Draft

	Name	Signature	Date
Prepared by	Joanne Fisher		April 2008
Approved by	Phil Davies		April 2008

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Strategy Division: Waste and Nuclear Materials

Process for Developing a UK Nuclear-Industry Low Level Waste Strategy



Date: April 2008

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1 Introduction

This document provides background information to the Nuclear Decommissioning Authority (NDA) Strategy Division process for developing and implementing a United Kingdom (UK) nuclear industry Low Level Waste (LLW) Strategy in accordance with the UK and European Union (EU) regulatory framework, NDA guidance, and the revised Government LLW policy¹ for nuclear and non-nuclear industry waste.

Radioactive waste management can be divided into a number of specific aspects or topics. For each topic a strategy or strategic direction can be defined to achieve the NDA's strategic objectives. For LLW, these strategies are focused on mitigating the current capacity constraints at the Low Level Waste Repository (LLWR) and reducing the NDA's overall cost liabilities for solid LLW. The full version of the plan will be distributed and discussed at the first NDA National LLW Strategy Group (LSG) meeting.

2 Background

2.1 Current NDA guidance and SLC progress in LLW Management

There is a culture of continuous improvement in waste management practices within the NDA's Site Licence Company (SLCs) organisations and their NDA SLC facing teams. SLCs have been undertaking optioneering to support the development of their Integrated Waste Strategies (IWSs), that in turn informs their overall lifetime plans (LTPs).

NDA is providing guidance, sharing good practices and promoting more effective ways in managing LLW through directly sponsored initiatives, such as the waste categorisation study reviews and savings identification, and the lifecycle baseline improvement project. Networking across and between industries via focused workshops and national seminars is also stimulating progress and collaboration.

A number of SLCs have implemented or are in the process of implementing new and innovative waste management projects in partnership with external supply chain organisations (e.g. LLW service providers, waste treatment companies, commercial landfill operators, environmental waste management companies, etc).

2.2 Government Policy for the Long Term Management of Solid LLW

In March 2007 the UK government published a new policy for the Management of Solid Radioactive Low Level Waste (LLW). Recognising that the previous policy published in 1995, known as Command 2919 (Cm2919), was not written with the NDA's large-scale decommissioning programme in mind, the new policy introduced a more flexible and fit-for-purpose approach for LLW management centred around the application of the waste hierarchy.

¹ Policy for the long term management of solid low level radioactive waste in the United Kingdom, Defra, DTI and the Devolved Administrations, 26 March 2007.

2.2.1 Key aspects of Government LLW Policy

The policy statement provides a high level framework within which individual LLW management decisions can be taken. This aims to ensure delivery of safe, environmentally-acceptable and cost-effective management solutions that appropriately reflect the nature of LLW. The key aspects of the policy are as follows:

- The policy statement provides greater clarity on many aspects of LLW management planning and expands the remit and responsibility of the NDA.
- LLW disposal with no intent of retrieval is the Government's desired end point for LLW that remains following application of the waste hierarchy. Postponing final disposal to future generations is considered unjustified.
- Alternate waste management routes are made available with policy modified for the export (and import) of LLW to other Organisation for Economic Co-operation and Development (OECD) and European Union (EU) countries, for recovery of re-useable materials or where treatment will make its subsequent storage and disposal more manageable. In all cases where such processes would add materially to the wastes needing to be disposed in the country of destination, the presumption should be that they will be returned to the country of origin.
- The definition of high and low volume Very Low Level Waste (VLLW) relaxes the limits for wastes containing solely Hydrogen-3 (tritium) and Hydrogen-3 and Carbon-14 respectively, which attempts to alleviate pressure on management routes for wastes such as demolition wastes (concrete, rubble and asbestos for example).

Waste management hierarchy principles, diversification of management solutions and a presumption toward early implementation rather than later are all reinforced. The Policy underpins the current NDA Strategy and the direction NDA have been giving their waste-producing contractors and the enhanced scope of the Low Level Waste Repository (LLWR) SLC contract. Waste management decisions and plans should include consideration of all practicable options, a presumption towards early solutions and appropriate consideration of the proximity principle, transport issues and other stakeholder concerns.

2.2.2 Roles and Responsibilities

The Government policy defines the roles and responsibilities of the various organisations involved in UK LLW management as follows:

Role of NDA:

- NDA is expected to develop a UK-wide strategy in the case of nuclear-industry generated LLW.
- Government will assess and approve NDA Strategy and Plans, which will now include LLW management and disposal strategy. The NDA's Strategy and Annual Plans will provide guidance for national, regional and local planning authorities as necessary in the preparation of planning strategies and their appraisal.
- NDA must develop and publish a plan for the optimum use of the LLWR near Drigg; assess the extent to which other disposal options might be employed and at what point in the future a replacement or replacements might be required and planned for the LLWR near Drigg.

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- NDA will, wherever appropriate and practicable, make LLW management and treatment facilities available to other nuclear and non-nuclear managers of radioactive waste on the basis of suitable commercial terms.
- NDA will also work in conjunction with Government on the development and maintenance of UK-wide strategy in the case of non-nuclear industry generated LLW to ensure the two strategies are suitably integrated.

Role of UK LLW producers:

- All nuclear licensed sites should have a plan for the management of their LLW holdings and predicted future arisings that is part of a wider integrated waste management strategy and is compatible with proposed end-states.
- UK LLW producers are the legally responsible entities to manage their radioactive wastes. Producers must demonstrate to their regulators that their environmental decision-making and waste strategy is integrated, optimised and includes early and broad stakeholder engagement.

The NDA will work closely with its contractors and other stakeholders to develop and implement the UK nuclear industry LLW Strategy as required under Government policy.

2.3 UK LLW Strategy

The purpose of the Government LLW Policy statement was to provide a high-level framework setting out principles for the long term management of LLW in the UK. The manner in which the policy is taken forward is via UK-wide strategies. As described in Section 2.2.2 above, the NDA will lead the development of a UK-wide strategy for LLW generated at nuclear sites. The LLWR SLC will have the following role:

- Provide assured storage and disposal for LLW and evaluate additional fit for purpose disposal options for UK LLW.
- National LLW Strategy Team to support NDA's role of developing and implementing the UK nuclear industry LLW Strategy and UK LLW Management Plan.
- Enhanced Consignor Support Organisation to support implementation of UK LLW strategy and management plan.

NDA has developed an interim LLW strategy position which can be summarised as follows:

- Optimised use of the LLWR as a national facility to support the storage and disposal needs of nuclear and non-nuclear industries.
- Support applications for additional capacity at LLWR to meet short-term needs.
- Resolve issues on the long-term suitability of the LLWR site for disposal.
- Require waste producers to follow the waste management hierarchy, investigating options other than disposal before consigning materials to this route as a last resort (e.g. by pursuing recycling and re-use opportunities).

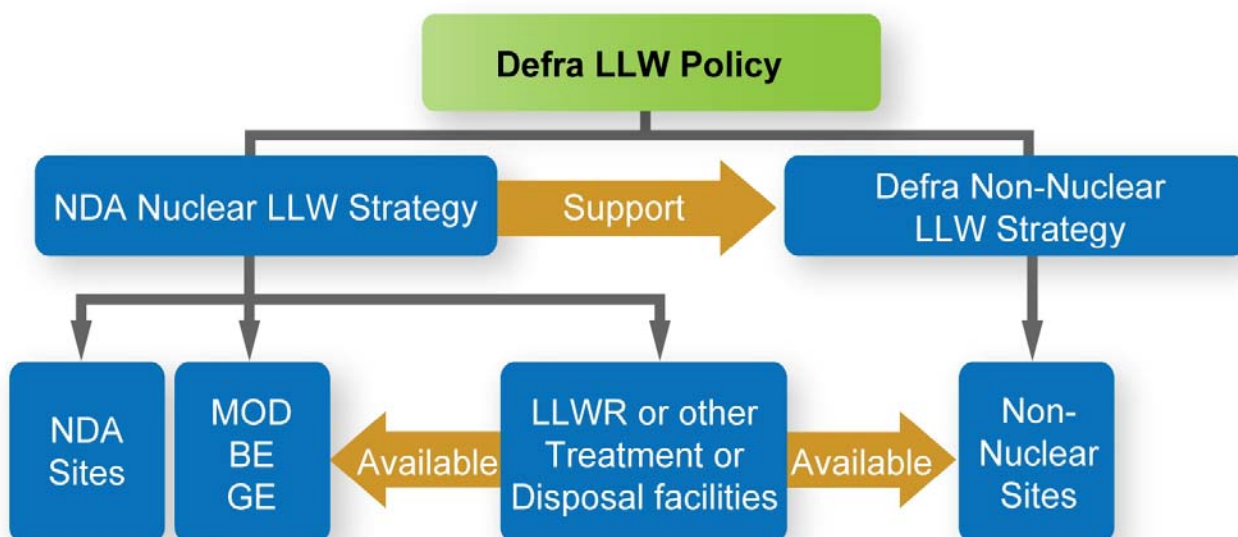
- Include scope for the new LLWR contractor to identify and evaluate alternative and diversified waste management solutions which are optimised on a national level
- Support initiatives to investigate and consult upon potential on-site disposal of LLW at some Magnox power station sites where this might be technically appropriate.

It is for these reasons that NDA Strategy 2006 refers to an ongoing need to use the LLWR near Drigg in the short to medium term while these opportunities for alternative disposal are explored.

As mentioned above, NDA has included scope to develop a UK LLW Management Plan, undertake strategic reviews and option and opportunity studies within the new Management and Operation (M&O) contract for LLWR. This work will inform the NDA UK-wide nuclear industry LLW strategy. A plan for the optimal use of the LLWR will be developed over the next few years, in line with the new NDA commitments under the policy.

The Government will develop and maintain a UK strategy for LLW arising from the non-nuclear industry. The non-nuclear industry covers all radioactive waste production other than that from military and civil nuclear licensed sites. It includes organisations such as hospitals, pharmaceutical, research and educational establishments which produce LLW throughout the UK. NDA will support this to ensure the strategies for nuclear and non-nuclear are suitably integrated. The roles and responsibilities for NDA are illustrated in Figure 1 below.

Figure 1 – Roles assigned by the LLW Policy



NDA Roles_r1.ai

2.4 NDA Strategy

The NDA will formulate and publish plans for LLW management and disposal in its NDA Strategy and Annual Plans, required by the Energy Act 2004 and approved by the Secretary of State and the Scottish Ministers. NDA is required to revise their Strategy within a five-year cycle with the next revision currently scheduled for before 2011. The existing NDA strategy was endorsed by UK Government Ministers in March 2006.

Reinforced by the revised LLW policy, the NDA Strategy and Annual Plans are now recognised as the key vehicles to provide guidance for national, regional and local planning authorities. They will also provide a basis for the NDA's contractors to move forward and apply for planning and regulatory approvals.

The nuclear and non-nuclear industry LLW Strategies and supporting plans will be considered by NDA when producing its next NDA Strategy update which will be published for public consultation prior to ministerial approval.

2.5 ITT for LLWR Competition – October 2006

The Challenge

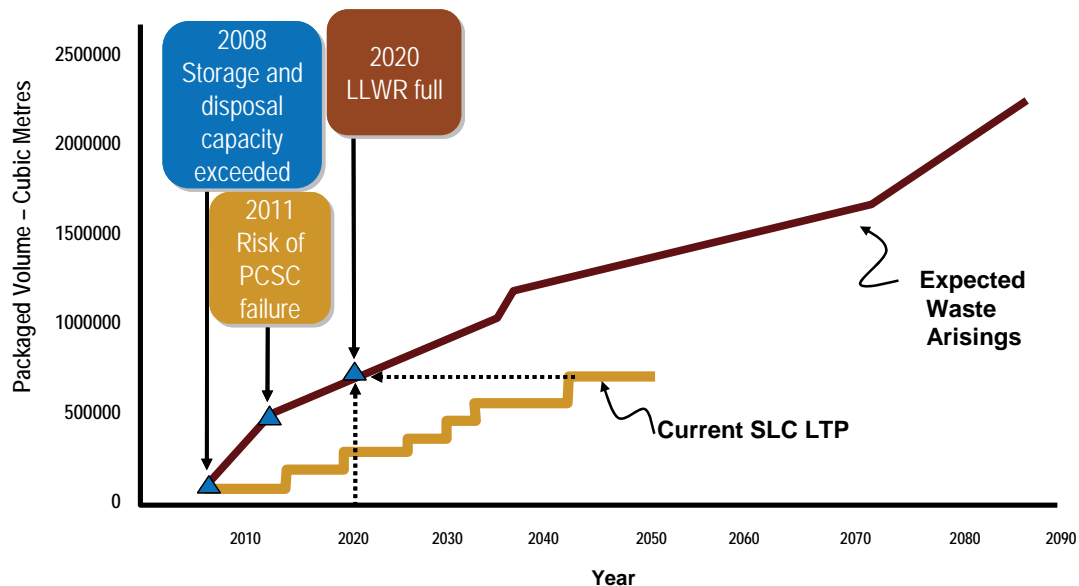
Based on currently forecasted LLW arisings the remaining authorised capacity of the LLWR (Vault 8) could be exhausted by early 2009 with further capacity extensions requiring planning approval². The assessment of the 2002 Post Closure Safety Case (PCSC) identified a number of issues and uncertainties regarding the short term and long term viability of the LLWR site for disposal.

Challenges to provision of assured storage and disposal at LLWR are illustrated in Figure 2. The figure indicates that even if the requirement to resolve PCSC issues by 2011 is achieved to Environment Agency satisfaction currently forecasted waste arisings could fill the remaining disposal capacity as early as 2020³. This assumes planning permission could be obtained and additional vaults could be constructed in a timely manner.

² Cumbria County Council granted planning consent for construction of Vault 9 at the LLWR on 22 January 2008.

³ Waste forecasts are currently being revised as part of the 2007 national inventory and LTP processes.

Figure 2 – Illustration of potential challenges facing UK LLW disposal



As described in Section 2.3 and 2.4, to support delivery of NDA Strategy and Annual Plans, and any potential future remit resulting from the Government LLW policy review, NDA issued an Invitation to Tender (ITT) in October 2006 for the M&O of the LLWR with enhanced scope. The scope of work was split into two “Elements” as described below:

Element 1 – LLWR Management and Operations

- Optimise the current Site LLW operations at the LLWR and the management arrangements for delivering these.
- Manage the predicted near term shortfall in the UK’s LLW disposal capacity.
- Ensure that further disposal capacity is made available as soon as practicable.
- Developing an agreed and defined end state for the LLWR near Drigg.
- Ensure that an appropriate Post Closure Safety Case (PCSC) is developed and agreed for existing and future LLW disposals at the LLWR, aligned to the agreed end state.

Element 2 – Provision of Low Level Waste Management to the NDA

- Undertake strategic review, options and opportunities studies and UK LLW Management plan as the ‘NDA LLW Contractor’.
- Provide strategic proposals and plans for managing LLW across UK producer Sites to ensure effective waste management, including effective implementation of the waste hierarchy in a co-ordinated way across the UK.
- Implementation of LLW management solutions, as appropriate.

The competition to select the new Parent Body Organisation (PBO) for the LLWR is nearing completion and awaiting ministerial approval to award contract.

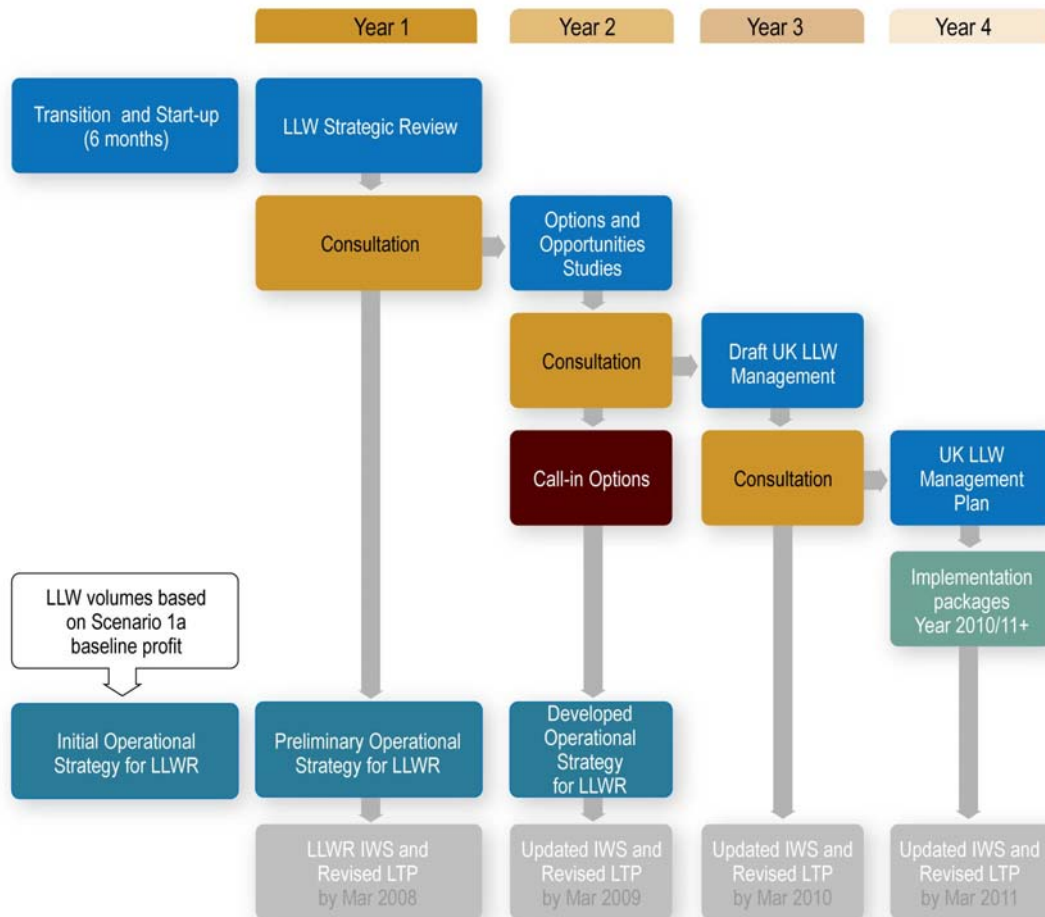
3 Plan for Development of LLW Strategy and LLW Elements of NDA Strategy

NDA will lead the development of the nuclear industry LLW Strategy. An innovative feature of the new LLWR M&O contract is the requirement, as strategic partners of NDA, to develop the long-term arrangements for the management of all UK LLW. This work scope will include provision of strategic plans for fit-for-purpose management and final disposal of LLW. The LLWR Contractor will work in collaboration with NDA and consignors to provide a comprehensive UK LLW Management Plan. The Plan will be used as a vehicle to guide, consult and communicate how the NDA's UK LLW Strategy will be implemented.

The Plan will set out the approach for managing all UK LLW up to cessation of LLW generation, currently reported as Year 2129, with consideration of possible scenarios after that date. The approach of the contract has been designed such that staged information can feed into NDA to inform production of the UK LLW Strategy and the LLW Elements of NDA Strategy.

The development of the UK LLW Management Plan was originally expected to be completed over four years as indicated in the Figure 4 which would support the revision of the NDA Strategy by 2011. NDA requested the bidding consortia to consider how they would develop the UK LLW Management Plan and supporting studies, including consideration of alternative flexible, consultative and staged approaches that might deliver accelerated improvements in LLW management. NDA are currently considering the requirements of the Strategic Environmental Assessment (SEA) Directive with respect to LLW strategy development.

Figure 4 - Original framework for development of the UK LLW management plan



3.1 Accelerated Approach to Development of UK LLW Management Plan

To mitigate the short term LLWR capacity gap issue, an accelerated approach to development of the UK LLW Management Plan is now proposed with linkages to the development of UK LLW Strategy and NDA Strategy. The approach is designed to meet NDA’s objectives of providing assured waste storage and disposal routes to meet the current and accelerated site decommissioning programmes and achieve early and significant reductions in the overall NDA LLW liability costs.

A staged approach to undertaking LLW Strategic Reviews, Option and Opportunity Studies and development of the UK LLW Management Plan is shown in Figure 5 below. This approach facilitates contribution into development of NDA Strategy and Annual Plans and UK LLW Strategy and allows flexibility to adapt to changing circumstances within and outside of the industry.

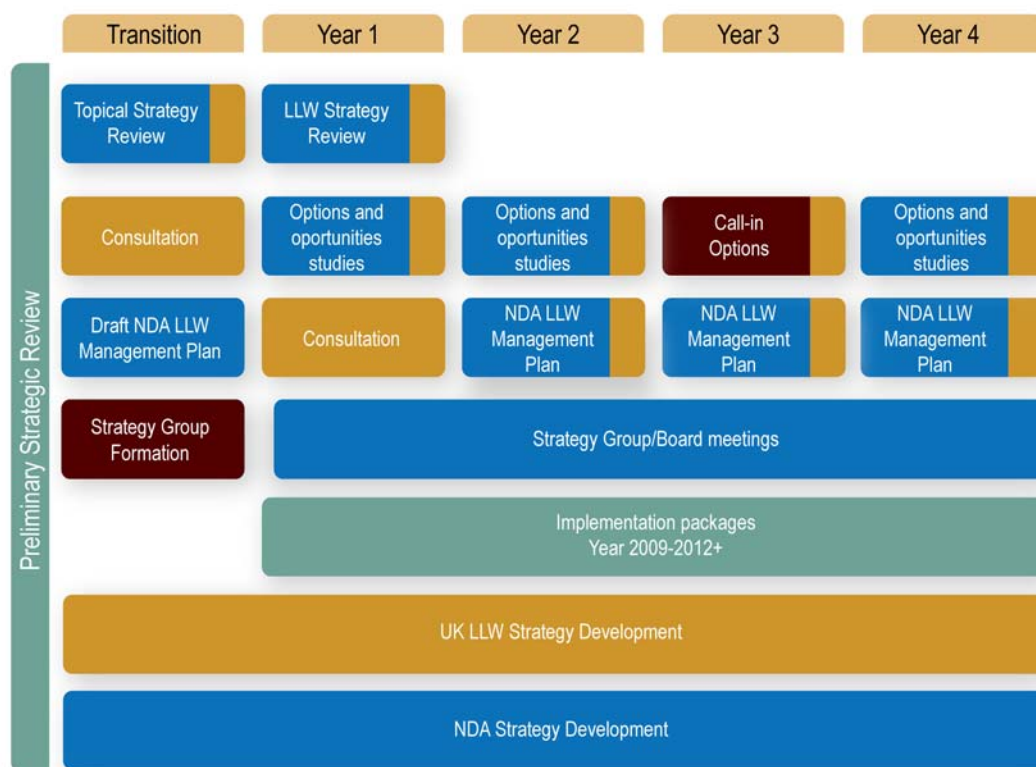
A description of each component in the process is provided in the following sections.

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Figure 5 - Accelerated approach for development of the UK LLW Management Plan



3.2 Preliminary LLW Strategic Review

A Preliminary Strategic Review of UK LLW management has been undertaken which included reviews of NDA site IWS, liabilities, inventories, assets, infrastructure and policy and regulatory frameworks. This review identified a number of initiatives and opportunities capable of achieving 20% reduction in NDA's LLW liability by 2129.

The approach for solving the LLWR capacity gap was integrated with the approaches for applying the waste hierarchy at the consignors' sites and opening up more fit-for-purpose disposal routes, consistent with revised UK LLW Policy. The review has resulted in a proposed plan for assured storage and disposal at the LLWR to 2070, with the option to extend the life of the LLWR beyond 2080, as applicable. This work represents an initial view and requires full discussion, consultation and review before taking forward.

3.3 LLW Topical Strategy Review

These opportunities identified in the Preliminary Strategic Review can be divided into a number of 'Topical Strategies' which set out strategic direction on various aspects of LLW management.

These topics include:

- Application of the waste hierarchy:
 - Waste Avoidance/Minimisation
 - Waste Characterisation
 - Waste Segregation/Categorisation
 - Waste Treatment
 - Recycle/Reuse
 - Waste Disposal (Exempt/VLLW/LLW)
- Waste Packaging
- Waste Transportation
- Waste Tracking/Inventory Management

These Topical Strategies will provide a basis for consultation with NDA and non-NDA consignors, regulators and stakeholders. The consignors particularly will be asked to comment on the preliminary topical strategies based on their individual IWS. The responses to this part of the consultation will be used to further develop and mature the resultant integrated topical strategies. As a result the LLW Topical Strategies will provide high-level conclusions and recommendations to NDA to inform the development of UK nuclear industry LLW strategy and NDA Strategy. The consulted Topical Strategies will then move forward into the LLW Strategic Review and Option and Opportunity studies stage of work, which will explore the issues in much greater detail including evaluation of how best the strategies are implemented.

3.4 NDA National LLW Strategy Group

The NDA will establish and maintain a National LLW Strategy Group (LSG) to develop a working partnership between NDA, LLWR, Regulators, Stakeholders and LLW consignors for promoting innovation, value for money, and implementing the waste hierarchy as well as planning for effective waste disposal solutions. The Draft Terms of Reference for the LSG will be discussed as part of the first LSG meeting.

The LSG shall serve as a collaborative and consultative forum to integrate the UK LLW programme on a regional and national scale. It will strengthen the partnership between the NDA, LLWR, LLW consignors, Regulators and others to support NDA's obligations under the Energy Act and in line with Government's LLW Policy 2007 as well as NDA's approved strategy. This initiative will support ongoing nuclear operations, the nuclear site decommissioning and remediation programme and the LLW disposal needs of 'non nuclear' organisations.

The preliminary schedule in 2008 for LSG meetings is as follows:

- April 2008
- June 2008
- August 2008
- October 2008

It is intended that meetings will be convened every six months thereafter or more regularly depending on the topics requiring discussion. It is intended that the LSG will be formed in early 2008 to act as a forum for consultation, discussion and development of the Topical Strategies. The objective for the group is to go beyond consultation and to achieve a measure of consensus amongst NDA, waste consigners, and stakeholders on the Topical Strategies. It is planned that the Group will meet several times in 2008 to discuss the evolution of the Topical Strategies as input to NDA's Strategy formulation process.

It is recognised that following the Comprehensive Spending Review (CSR) there may be a number of changes to consignor's Lifetime Plans (LTPs) and hence the topical strategies may be reviewed once the final LTP08s have been produced and submitted to NDA.

3.5 LLW Strategic Review

The consulted Topical Strategies will be further developed in the LLW Strategic Review during 2008. The Review will include analysis of NDA and non-NDA nuclear industry LLW arisings, potential management routes and disposal solutions building on initial engagements and feedback. The review shall be carried out in the context of NDA strategy, Government Policy and the UK legislative and regulatory framework. The analysis will take due account of non-nuclear industry LLW arisings and be integrated with the Government's programme for development of the non-nuclear industry LLW Strategy.

The proportion of the NDA lifetime liability for LLW originating on NDA sites was estimated in LTP 2006/2007 to be around £6.2 billion (excluding any additional LLW facilities not currently included in the LTPs). Part of the Strategic Review involves identification of potential synergies and opportunities for NDA to reduce LLW costs across its sites by 10% below the baseline by 2010.

The scope of the LLW Strategic Review will include reviews of NDA site LTPs, IWSs, liabilities, inventories, assets, infrastructure and policy and regulatory frameworks, prioritised by areas that will most quickly generate solutions to NDA's key challenges. It should be noted that the scope and deliverables will be consulted upon via the LSG.

The results of the strategic review will be documented in an LLW Strategic Review report and issued to the LSG members for consultation at the October 2008 Group Meeting. The review will segregate the opportunities, with emphasis on identification of early solutions into "quick-wins" (i.e. LLW management improvements and cost-saving initiatives that can be potentially implemented in year 1, subject to appropriate regulatory and stakeholder consultation and approvals) and longer-term initiatives that require further evaluation via the Option and Opportunity Study Process.

It is currently intended that the LLWR SLC undertake LLW strategic reviews every two years in order to revisit earlier conclusions in light of ongoing consultation and the results of early initiatives implemented, developments within the wider industry decommissioning programmes, and changes in national or regional waste management policy and regulatory frameworks.

3.6 Options and Opportunities Studies

Option and Opportunity Studies will be undertaken to develop and consult on preferred LLW management solutions from a national strategic perspective. The option and opportunity studies will be phased during years 1-4. Priority Opportunities identified during the Topical Strategy Review and LLW Strategic Reviews will be addressed during the First Options and Opportunity Study.

The phased approach to options and initiatives segregates option and opportunity studies into those that represent shorter-term options or initiatives and those that would be implemented over the medium to long-term. Some studies, such as optimisation of existing facility use and sharing best practices in applying the waste hierarchy, may be completed quickly. Other studies may take considerably longer, such as possible investment in new UK waste treatment and disposal facilities, particularly when working with other NDA contractors on currently planned infrastructure and other assumptions. Similarly, individual studies may be required to evaluate topics, such as application of waste treatment technologies and new disposal facilities, which have very large scope and diversity. Other topics such as waste avoidance, characterisation and segregation, for example, may be efficiently analysed in a single study.

The objectives of this approach are to provide flexibility for:

- Additional studies to be added to the scope in later years
- Flexible support to waste producers in their initiatives, as applicable
- Options to be recommended or partially implemented in the near-term while longer-term studies to underpin full deployment or implementation are undertaken
- Several phases of option study on the same topic to substantiate and inform implementation (e.g. facility siting)
- Revisiting previous study conclusions in light of changing circumstances in policy, regulatory framework, inventory, decommissioning programme or consignor initiatives
- Phased stakeholder consultation and engagement in the process.

Some studies may be combined, streamlined or undertaken by others (e.g. consignors). To maximise value, studies could identify potential synergies by considering key issues on a multi-site/national basis. Where possible, the aim will be to build on work undertaken by consignors to underpin development of their LTPs and IWSs and maximise synergies across the UK. The studies will provide high-level conclusions and recommendations for preferred solutions or strategies which will act as a framework to support consignors when they undertake more detailed option and implementation studies at a site level.

An “Integrated Waste Management” (IWM) process has been developed to provide a structured, flexible, robust and transparent decision-making framework for the development and evaluation of preferred

solutions. These solutions will be based on sustainability principles, national policy, the waste hierarchy and appropriate consideration of the proximity principle. The LLWR SLC will apply this process to identify, prioritise and develop implementation plans for fit-for-purpose and demonstrably optimised solutions with respect to the needs of key stakeholders, including local and national planning and regulatory and government frameworks for the NDA.

The strength of the IWM process for incorporating the requirements and needs of key stakeholders is the compilation and analysis of inputs to each step of the process. For each option to be studied, the first inputs include the topic to be considered, the goals of its solution, and a range of possible technical and management solutions and to what degree the option has already been investigated. These are considered in the context of strategy, policy, regulatory guidelines and other stakeholder issues.

The process utilises decision-analysis tools to aid and inform the waste management decision-making process. These could include Sustainability Appraisal, Best Practicable Environmental Option assessments, Multi-Attribute Decision Analysis, Multi-Criteria Decision Analysis, Best Available Techniques and Best Practicable Means assessments as appropriate. The result is a decision-making approach with the following characteristics:

- Avoids reassessment of options where information already exists and remains valid
- Delivers consistency in the consideration of relevant attributes
- Promotes consistent management strategies for equivalent wastes
- Identifies realistic options considered for each of the wastes
- Recognises opportunities for cooperation with other sites and organisations
- Substantiates the preferred option taking into account all relevant safety, environmental, policy, regulatory, sustainability, social, technical and economic factors
- Manages interrelationships among different waste streams
- Integrates LLW strategies from a national perspective
- Provides robust, auditable, transparent results visible to stakeholders.

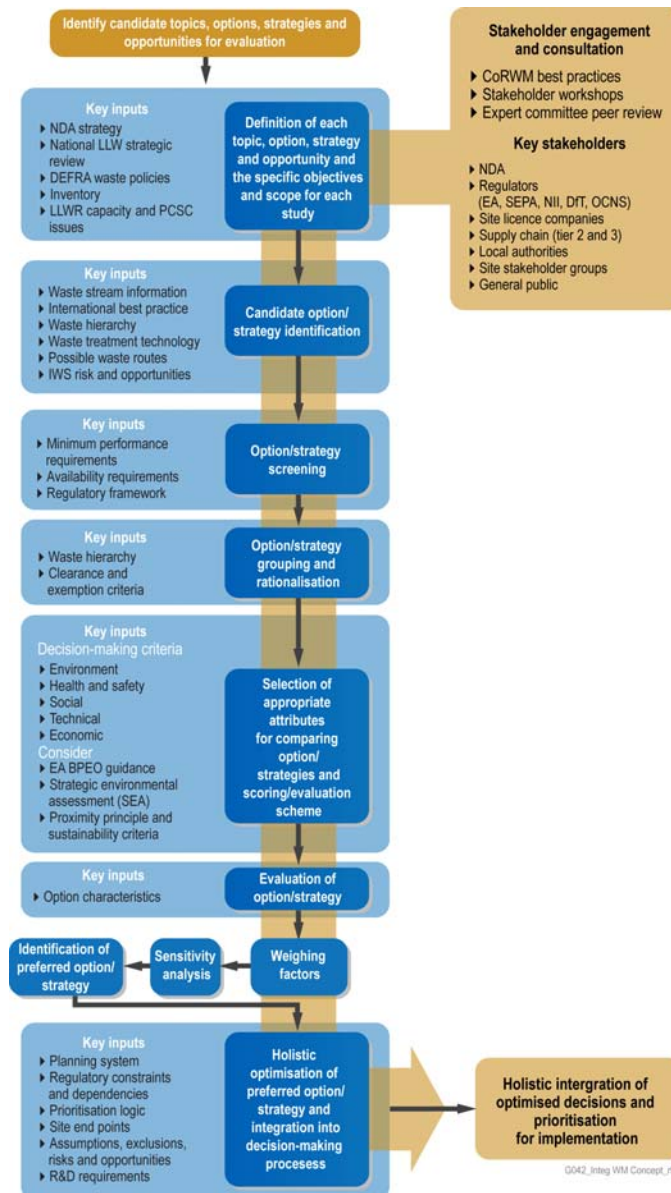
Stakeholder engagement is an integral component of the decision-making process. When appropriate, we may request that the conclusions of some studies, such as those that involve highly technical subjects, are subject to peer review by independent experts.

The IWM process, shown in Figure 6, allows for the depth of consideration at each stage of the assessment to be tailored to the scope and objectives of the study. In general, the larger the scope and reach, the better defined and more formal the stages should be. In a smaller study, they may be implicit or merged together, provided that this is documented and justified. In this way, some studies that represent relatively straightforward or low-impact decisions can be subjected to a simplified fit-for-purpose evaluation process; more time and resources can be focused on the more significant or challenging decisions.

The study process as designed will lead to a number of best practicable optimised solutions being proposed. Given that there are constraints on funding, timescales, resources, waste arisings, LLWR capacity and supply chain capability, the LLWR SLC shall review and integrate the output of the various

studies and prioritise solutions for implementation to provide best value to the NDA and Government. A number of organisations may be involved in implementation of proposals including LLWR SLC, other NDA SLCs, non-NDA SLCs and the supply chain. The procurement / implementation strategy will be considered on a case-by-case basis.

Figure 6 - IWM Decision-Making Process for Option and Opportunity Studies.



3.7 UK LLW Management Plan

This UK LLW Management Plan will set out the Strategy for all nuclear industry LLW up to cessation of LLW generation (currently reported as Year 2129) with consideration of possible scenarios after that date, as applicable. The Plan will be informed by the results of the LLW Strategic Reviews and Option and Opportunity Studies. The Plan will be used as a vehicle to guide, consult and communicate how the UK LLW Strategy will be implemented.

The plan will document how the key concepts of the waste hierarchy, sustainability, use of best practice and innovative technology will be applied within a robust and transparent decision-making framework to produce an integrated and optimised implementation plan leading to a step change in LLW waste management practices across the UK. The aim being for optimised, fit for purpose and diverse local, regional and national solutions for the different types of LLW expected to arise from ongoing operations and decommissioning.

When formulating the plan, the NDA, LLWR SLC and consignors will look for synergies on a national, regional and multi-site scale. The plan will be formulated to be consistent with government waste policy, the regulatory framework, NDA strategy, annual plans and overall work programmes. The plan will identify robust mechanisms for delivery that can be integrated with other NDA and SLC documents such as LTPs, IWSs, site risk registers, technical baselines, regulatory schedules and stakeholder engagement plans.

The plan will identify issues such as future investment needs for new or modified waste management facilities, assets and infrastructure, risk mitigation strategies and areas where research and development activities are needed to be carried out to support the waste strategy and implementation plan. The plan will be subjected to extensive stakeholder consultation to ensure a degree of stakeholder buy-in to the implementation process.

Implementation of the plan will take into account policy, legal and planning frameworks at a national, regional and local level. Throughout the implementation process stakeholder dialogue will continue at national, regional and local levels. We will ensure compliance with European procurement rules and make best use of the capabilities and innovation in the supply chain to create a step change in performance and provide best value for money.

A Draft UK LLW Management Plan will be created in parallel with the LLW Strategic Review and consulted with the UK waste producers and other stakeholders via the LSG meetings. The first draft will document the key elements of the proposed approach to develop the NDA's Nuclear Industry LLW Strategy. The UK LLW Management Plan will be further developed during 2008 to incorporate the results of the LLW Strategic Review and Option and Opportunity Studies.

The plan will be updated on an annual basis with the intention of informing the SLC lifetime planning process and other waste management plans (relevant to the Non-NDA sites).

3.8 Implementation of Solutions

The LLWR SLC will develop the prioritised solutions into detailed implementation plans and recommendations that may include business cases, stakeholder engagement plans and other supporting documentation. Implementation plans for work packages will take into account a number of factors including the policy, legal and planning frameworks at a national, regional and local level.

When formulating implementation plans, the LLWR SLC will promote and make best use of new ideas, innovative techniques and technologies in use by consignors and the supply chain to maximise value to the NDA. The SLC will actively promote the sharing of best practices through industry groups (e.g. Clearance and Exemption Working Group (CEWG), CIRIA learning networks: SDSpur, SafeSpur and Safegrounds). The LLWR SLC Consignor Support Organisation will facilitate this process for sharing best practice amongst consignors and may develop and publish best practice guides, where appropriate.

Implementation of work packages and call-in options as part of the contract will be subject to NDA (or higher) approval and ongoing stakeholder dialogue at national, regional and local levels. The approach to implementation will support and be complementary to initiatives being executed by other members of the LLW partnership. The LSG will facilitate the integration and co-ordination of these activities. The preferred solutions will be discussed with the NDA and incorporated into the NDA LLW Management Plan.

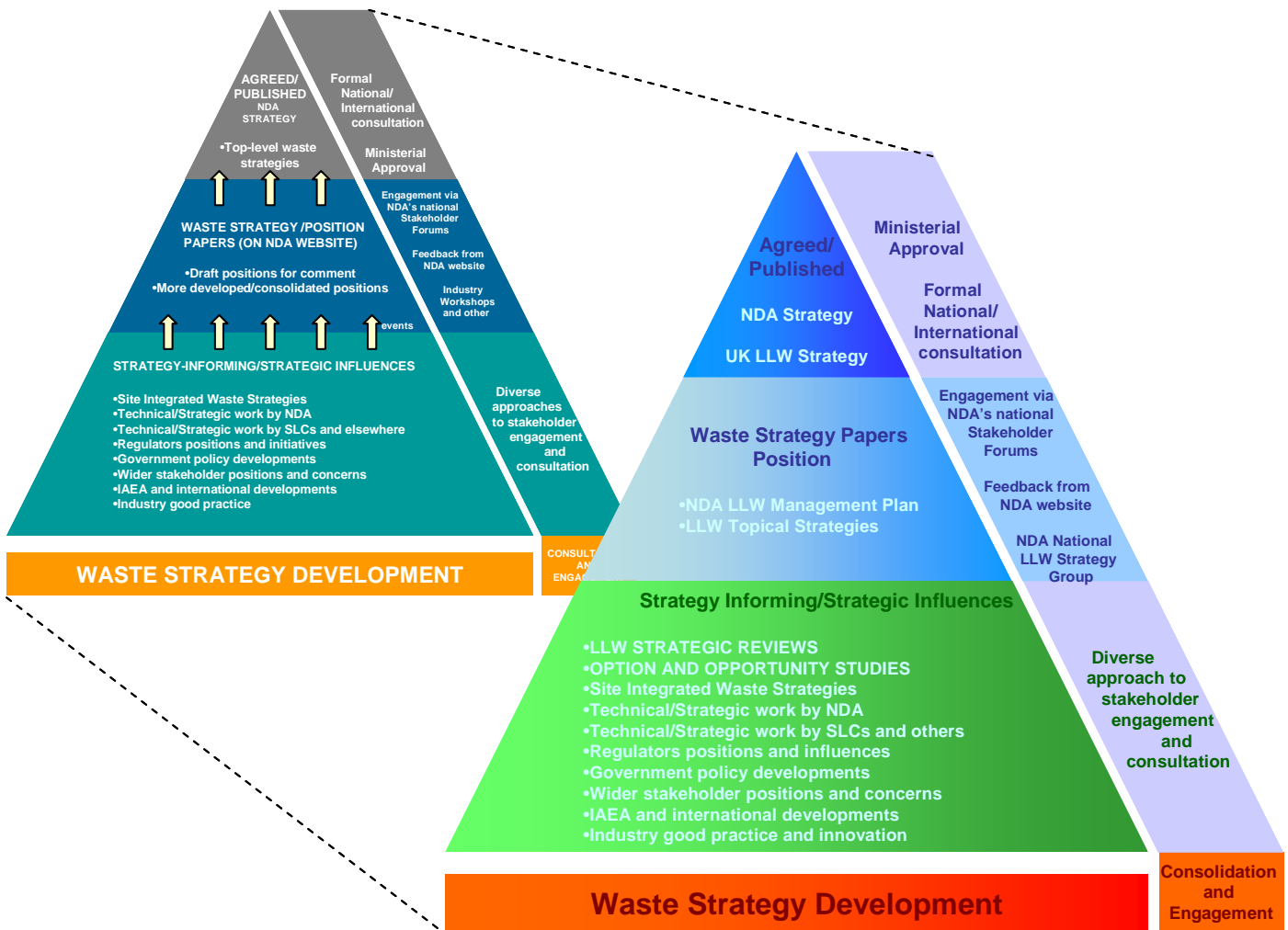
The IWM process examines annual revisions to the plan to ensure consistency with the incorporation of other ongoing industry initiatives (e.g. onsite disposal at Magnox sites), the package-by-package approach to option and opportunity studies and their call-in to the contract, as appropriate.

4 Key Activities from March 2008 to August 2008

As discussed in Section 2.4, although the schedule for nuclear industry LLW Strategy development and NDA Strategy revision is still being considered, the NDA Strategy could be approved by Government during 2009 or 2010. NDA has new responsibilities under the revised Government LLW policy and is tasked with providing fit-for-purpose LLW management and disposition routes which are essential to nuclear industry operations and decommissioning programmes. Furthermore, these facilities should be made available, where appropriate, to the non-nuclear industry.

The NDA's overall framework model for radioactive waste strategy development is shown in Figure 7 (smaller triangle) below along with the key mechanisms for stakeholder engagement in the process. The large triangle shows the key components that inform waste strategy from a LLW perspective however a similar approach could be adopted for Intermediate Level Waste (ILW) and High Level Waste strategy (HLW).

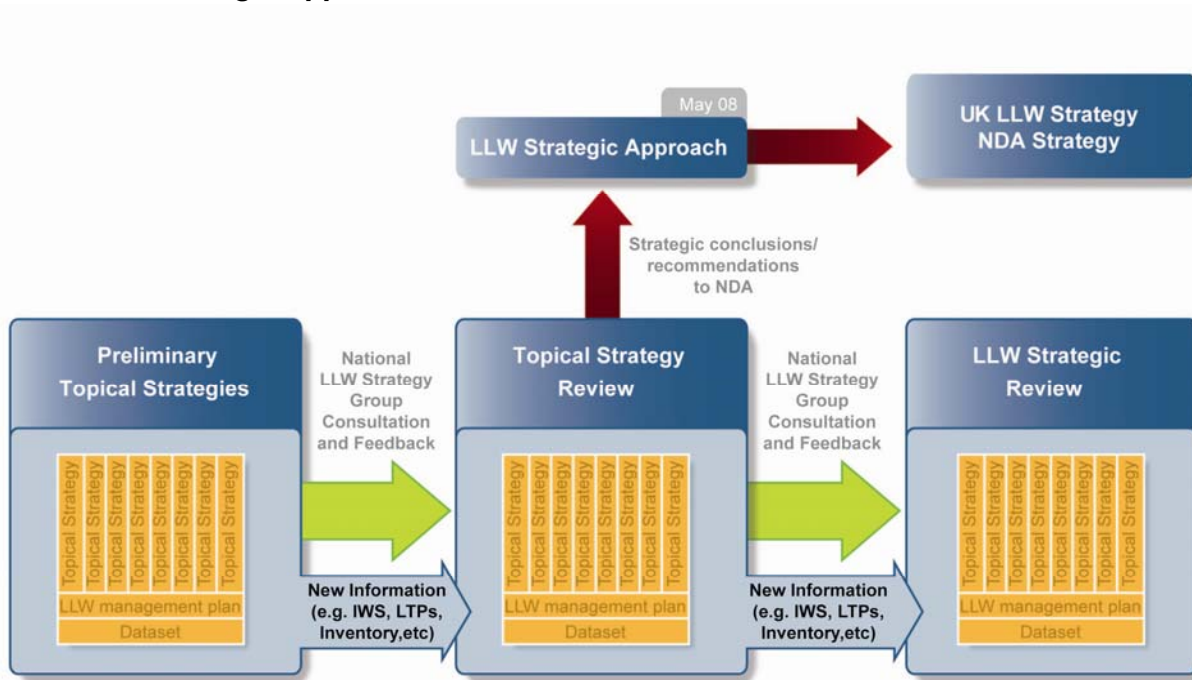
Figure 7 - Development of Waste Strategy



Given the current short and long-term capacity pressures at the LLWR near Drigg, LLW management will therefore represent a key component of NDA Strategy going forward. NDA has designed flexibility into the strategy development process to allow for staged output to feed into other NDA strategic considerations.

Figure 8 below illustrates an approach to build upon the Preliminary Strategic Review by developing Topical Strategies which, following consultation (via the LSG and NDA website), will be considered by NDA when developing the UK nuclear industry LLW Strategy and NDA Strategy.

Figure 8 – LLW Strategic Approach



To facilitate this process NDA intends to form the LSG (see Section 3.4) to discuss, consult and mature these strategic recommendations. The objective for the group is to go beyond consultation and to achieve a measure of consensus amongst NDA, waste consignors and stakeholders on the Topical Strategies.

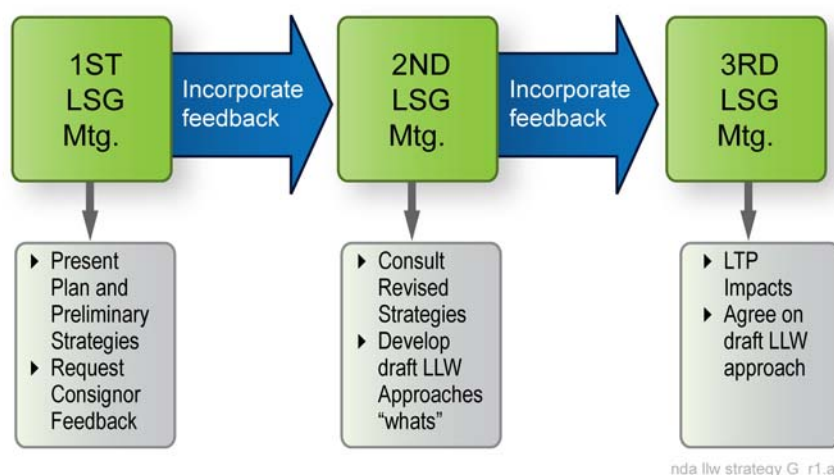
Using the initial LSG meetings, the NDA, LLWR SLC and consignors will be able to discuss aspects of the LLW Topical Strategies. At this stage these strategies will primarily focus on the strategic principles of “what to do” rather than the detailed “how to do it”.

Key activities to achieve this can be summarised as follows:

- Preparation of LLW Topical Strategies from the Preliminary Strategic Review.
- Formation of LSG to review and consult LLW Topical Strategies
- Evaluation of the latest UK LLW inventory
- Update Topical Strategies based on LSG review and consultation.
- Review and update NDA's uncontracted liabilities (e.g. requirements for future LLW disposal facilities)
- Development and consultation of a draft UK LLW Management Plan Outline
- Consultation on Integrated Waste Management (IWM) Process

It is planned that the Group will meet several times to discuss the evolution of the Topical Strategies as shown in Figure 9 below. The NDA will consider and incorporate, as appropriate, the Group's conclusions/recommendations and the matured Topical Strategies when formulating nuclear industry LLW Strategy and NDA Strategy.

Figure 9 - LLW Strategy Group Meetings



Whilst the NDA is considering the Group recommendations, the Topical Strategies will be further built upon in the LLW Strategic Review as described in Section 3.5. This will look in more detail at the strategic principles to develop and further quantify the potential opportunities both in terms of volume and liability cost.

The 'Topical Strategies' for LLW and risks and opportunities associated with the potential strategy will be distributed at the first NDA National LLW Strategy Group (LSG) meeting. The objectives of this meeting are to present and plan the preliminary strategies and obtain feedback from consignors, regulators, and relevant stakeholders in order to rework and iterate the plan based on this valuable input.

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5 Stakeholder Engagement Plan

5.1 *Background*

Stakeholder Engagement is critical for successful development of nuclear industry LLW strategy and the implementation of the resulting solutions. This plan is fully integrated with other NDA stakeholder engagement work and has incorporated lessons-learned from the 2007 Process Review, conducted by the Convenor for NDA. Figure 10 shows the Stakeholder Engagement Framework for the UK nuclear industry LLW Strategy and Figure 11 presents a summary of the Stakeholder Engagement Opportunities related to the framework. NDA will utilise this framework to communicate, solicit feedback, and conduct formal consultation for the development of the strategy. Stakeholders will have the ability to prioritise the various opportunities to match their particular interests.

5.2 *NDA Formal Consultations*

Although the schedules for NDA Strategy revision and the nuclear industry LLW Strategy are still being considered they could be approved by Government in 2010 and 2009 respectively. As discussed in Section 4, the NDA led activities shown in Figure 10 will be used to inform the development of both strategies. The Strategies will be published for public consultation prior to ministerial approval.

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Figure 10 – Stakeholder Engagement Framework

UK National LLW Strategy - Stakeholder Engagement Framework		2008												2009											
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
ACTIVITY	NDA Formal Consultations	UK National LLW Strategy: Preparation (Jan-Mar), Consultation (Apr-Jun), Finalise (Jul-Sep), Drafting (Oct-Dec)																							
	NDA Led Activities	UK National LLW Strategy: Preparation (Jan-Mar), Consultation (Apr-Jun), Finalise (Jul-Sep), Drafting (Oct-Dec) NDA Strategy: Preparation (Jan-Mar), Consultation (Apr-Jun), Finalise (Jul-Sep), Drafting (Oct-Dec)																							
	National LLW Strategy Group (LSG)	Preparation (Jan-Mar), Consultation (Apr-Jun), Amend (Jul-Sep), Publish (Oct-Dec)																							
	UK LLW Management Plan	Preparation (Jan-Mar), Consultation (Apr-Jun), Publish (Jul-Sep), Annual Rev. (Oct-Dec)																							
	LLW Strategic Review	Consult (Jan-Mar), Prepare (Apr-Jun), Consult (Jul-Sep), Publish (Oct-Dec)																							
	Options and Opportunities Studies	Consult (Jan-Mar), Quick Wins (Apr-Jun), Consult (Jul-Sep), Publish (Oct-Dec)																							
	Communication Forums	Initial (Jan-Mar), Updated Versions (Apr-Jun), Briefings as Required (Jul-Sep), Meetings (Oct-Dec)																							
	Topical Strategies - NDA Website/Publications	Initial (Jan-Mar), Updated Versions (Apr-Jun), Briefings as Required (Jul-Sep), Meetings (Oct-Dec)																							
	National Stakeholder Group (NSG)	Mtg (Jan-Mar), Mtg (Apr-Jun), Mtg (Jul-Sep), Mtg (Oct-Dec)																							
	West Cumbria Site Stakeholder Group (WCSSG)	Mtg (Jan-Mar), Mtg (Apr-Jun), Mtg (Jul-Sep), Mtg (Oct-Dec)																							
	WCSSG-LLWR Sub-Committee	Mtg (Jan-Mar), Mtg (Apr-Jun), Mtg (Jul-Sep), Mtg (Oct-Dec)																							
	Other Site Stakeholder Groups (SSG)	Mtg (Jan-Mar), Mtg (Apr-Jun), Mtg (Jul-Sep), Mtg (Oct-Dec)																							
	Waste Management Strategy Group (WMSG)	Mtg (Jan-Mar), Mtg (Apr-Jun), Mtg (Jul-Sep), Mtg (Oct-Dec)																							
	NuLeAF	Mtg (Jan-Mar), Mtg (Apr-Jun), Mtg (Jul-Sep), Mtg (Oct-Dec)																							

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Figure 11 – Stakeholder Engagement Opportunities

UK National LLW Strategy - Stakeholder Engagement Opportunities									
Forum	Cumbria County Council	Copeland Bor. Council	Allerdale Bor. Council	Drigg Parish Council	Other Local Councils	NuLeAF	Regulators	Government	Consignors
NDA Formal Consultations NDA Strategy NDA Nuclear LLW Strategy	Consult	Consult	Consult	Consult	Consult	Consult	Consult	Approve	Consult
	Member					Member	Member	Corresponding Member	Member
NDA Led Activities National LLW Strategy Group UK LLW Management Plan LLW Strategic Review Options & Opportunities Studies	Consult	Opportunity to consult	Opportunity to consult	Opportunity to consult	Opportunity to consult	Consult	Consult		Consult
	Member	Member	Member	Member	Member	Member	Member	Member	Member
Communications Topical Strategies - NDA Website/Publications National Stakeholder Group (NSG) West Cumbria Site Stakeholder Group (WCSSG) WCSSG- LLWR Sub-Committee Other Site Stakeholder Groups (SSG) Waste Mgmt. Strategy Group NuLeAF	Comment	Comment	Comment	Comment	Comment	Comment	Comment		Comment
	Member	Member	Member	Member	Member	Member	Member	Member	Member
	Member	Member	Member	Member	Member	Member	Member	Member	Member

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5.3 NDA Led Activities

The key NDA Led Activities described in Section 3 and 4 are:

- National LLW Strategy Group (LSG)
- UK LLW Management Plan
- LLW Strategic Reviews and Options and opportunities Studies
- Topical Strategies

The Stakeholder Engagement Opportunities for these activities are shown in Figure 11.

5.4 Additional Communication Forums

NDA will utilise additional communication forums, shown in Figure 10, to communicate the status of the development of the nuclear industry LLW Strategy with the key stakeholders. This will ensure timely communication of key issues and allow key stakeholders to make productive use of their time.

5.4.1 Topical Strategies

As described in Section 3, the Topical Strategies will provide a basis for consultation with NDA and non-NDA consignors, regulators and stakeholders. They will be discussed and developed using the LSG Forum, but will also be available on the NDA website and in NDA publications. Stakeholders can utilise the website to provide comments and the publications will be utilised at the various Stakeholder Groups to provide up to date information.

5.4.2 Stakeholder Groups

NDA will utilise the existing Stakeholder Groups to present briefing papers and solicit comments. A central database will be utilised to ensure that stakeholders get timely feedback.

5.4.3 Waste Management Strategy Group (WMSG)

NDA will utilise this forum to provide briefing papers to ensure consistency in the development of LLW strategies with other strategic initiatives.

5.4.4 Nuclear Legacy Advisory Forum (NuLeAF)

NuLeAF is a member of the LSG and the NSG to ensure adequate representation of Local Government interests and concerns. NDA will present Briefing Papers for NuLeAF Regional Seminars to ensure broad communication with local governments.