Nuclear Decommissioning Authority

British Nuclear Group
Intelligent nuclear clean-up

Capenhurst
Site Summary

Lifetime Plan

PSWBS Site ref.: **32**

2006/07 Lifetime Plan

Lifetime Plan Overview

This Lifetime Plan combines for the first time, the three years of the NTWP and the following out years that comprise LCBL. The plan, supported by appropriate strategies, covers the period from April 2006 until Site Closure.

This Lifetime Plan describes the activities to be undertaken from April 2006 until Site Close-Out Post 2120.

The baseline is set out in a document structure and hierarchy as illustrated in figure 32-1. It is organised in four parts:

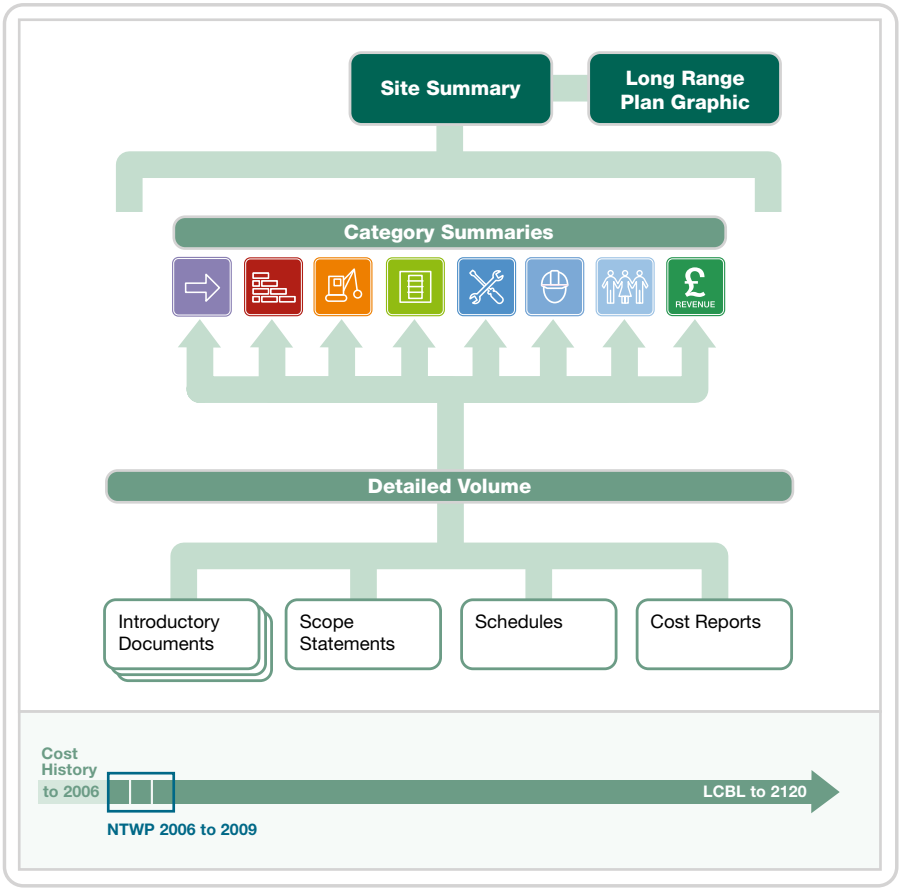
- Site Summary.
- Long Range Plan Graphic.
- Category Summaries.
- Detailed Volume.

The value table for this and following submissions of the Lifetime Plan includes prior years cost to date from 2005 onwards in the Site Summary.

The baseline has been prepared as an electronic document submission.

Navigation through the documentation is by a website type interface, where supporting information can also be accessed.

Figure 32-1 – **Capenhurst Lifetime Plan structure**



Contents

Site Overview

In the last six years the Capenhurst team has established an excellent track record in project delivery producing outstanding safe, secure and environmentally sound results. Innovation in decommissioning work has already resulted in accelerated work schedules and significant cost savings both immediate and long term.

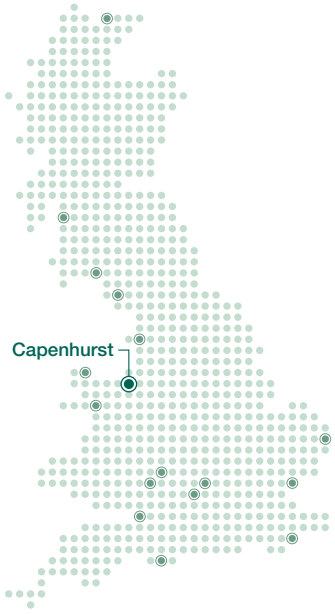


Figure 32-2 – Capenhurst key facts

Basics	Location:	South Wirral
	Nearby towns/cities:	Chester (7 miles)
	Site area:	40 hectares
	Number of current employees:	159
Key dates	Royal Ordnance Factory:	1940
	Diffusion Plant construction started:	1952
	Enrichment operation started:	1961
	Enrichment operation ended:	1982
	Uranic storage business started:	1995
Plant description	**Diffusion Plant:**	**Undergoing decommissioning**
	Plant size:	Over 1km in length (largest single roof building in its time in Europe)
	Feedstock material:	Natural and depleted uranium
	Design capacity:	400 Tonnes per year (SWU)
	Electrical usage:	250 MW (Equivalent to the city of Leeds)
	Uranic Storage:	
	Storage area:	60,000m²
	Current capacity:	40,000te uranium
	Future total capacity:	60,000te uranium
	Site:	
	Previous operators:	UK Atomic Energy Authority Production Group, British Nuclear Fuels (BNF plc)
	Current operator:	British Nuclear Group
Unique factor	Capenhurst was the only diffusion enrichment plant in the UK and currently stores uranium tails and other uranium materials. Capenhurst shares a common site boundry with Urenco who operate their own licenced site for uranium enrichment.	

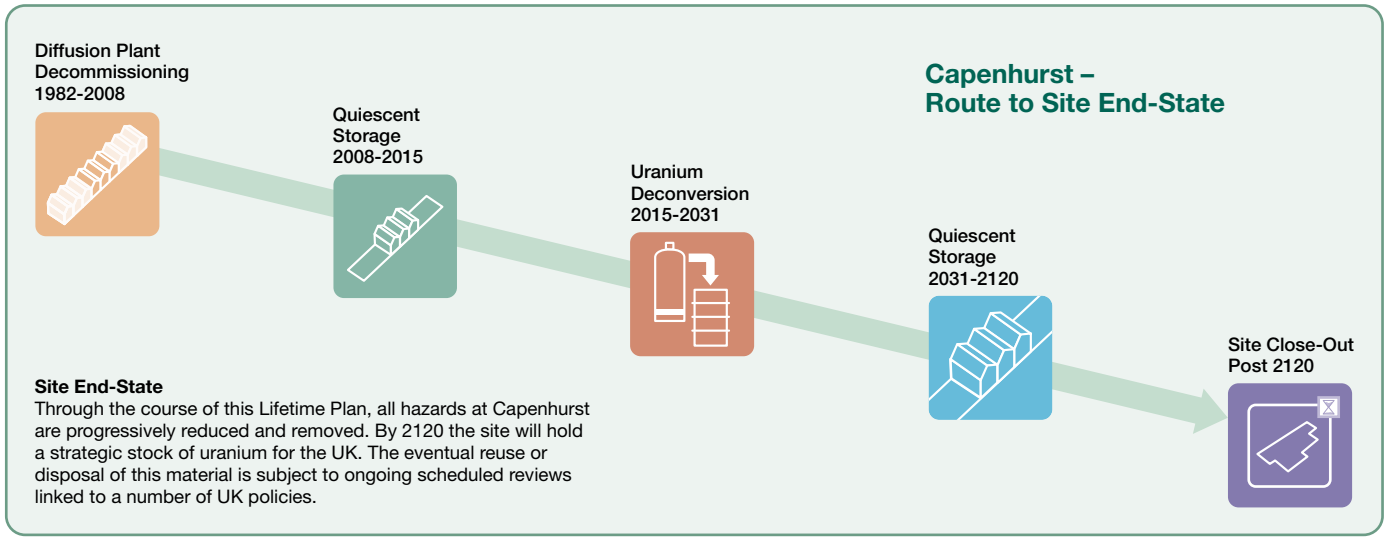
Figure 32-3 – Prioritisation logic

Key Phase	Focus Areas	Prioritisation		
		Non–discretionary	Operations Related	Discretionary
1. Diffusion Plant Decommisioning	Maintenance of the Licensed Site	✓		
	Receipt and Storage of uranium		✓	
	Decommissioning of the Diffusion Plant			✓
2. Quiescent Storage	Maintenance of the Licensed Site for the storage of uranium	✓		
	Receipt of uranium		✓	
3. Uranium Deconversion	Maintenance of the Licensed Site for the storage of uranium	✓		
	Deconvert uranium to passive state	✓		
3. Quiescent Storage 2nd Stage	Maintenance of the Licensed Site for the storage of uranium	✓		

Capenhurst Lifecycle Baseline Key Phases

For logistical and planning purposes Capenhurst has divided its Lifetime Plan, from an operational stage to Final Site Clearance, into five distinct phases. Each phase is linked to major physical changes in the site activities.

Figure 32-4 – **Route to Site End-State**



Location

The main Capenhurst Site embodies two separate Nuclear Licensed Sites and the licence holders are British Nuclear Group and Urenco (Capenhurst) Ltd (UCL).

Only the British Nuclear Group Site is within the NDA remit and is shown in the photographs below with the surrounding land shaded blue.

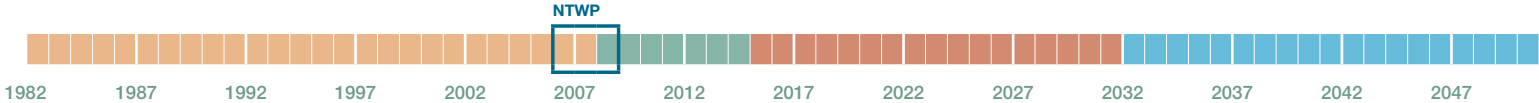
Diffusion Plant Decommissioning – 1982-2008

Phase 1 is currently over 90% complete and, although uranium storage continues, the main thrust of activity is the decommissioning of the diffusion plant.

The end of this phase has already been accelerated from 2012 and with the additional funding has now been accelerated to 2008 in this plan.

Quiescent Storage – 2008-2015

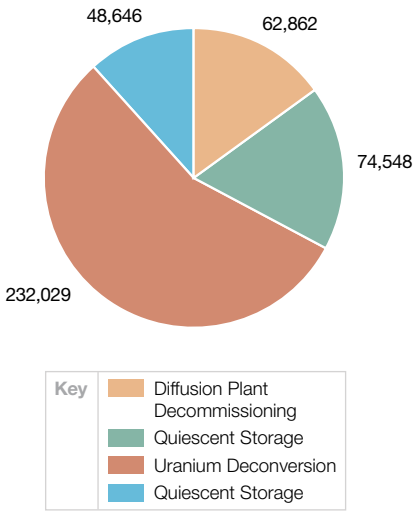
Nine of the 23 bays of the diffusion plant will not be demolished, but will be refurbished and retained for a further 40 years for the storage of uranium. Phase 2 is the initial short term quiescent storage period that precedes the construction of the uranium hexafluoride deconversion facility. During this phase the receipt of uranic materials continues linked to the Magnox Operating Programme (MOP) at Sellafield.



The plan for 2006 represents the current underpinned scope of work. In June 2005 the uranium deconversion policy was reviewed and a number of opportunities identified. Further work was undertaken to develop these concepts into an alternative strategy for Capenhurst.

Works scheduled in 2006/07 will address these options in greater detail and provide a robust basis to change the Lifetime Plan, aimed at early hazard reduction may shorten the lifecycle by up to 100 years against a clearly defined end-state.

Figure 32-5 – **Total cost distribution by key phase for LCBL (£k)**



Uranium Deconversion – 2015-2031

The first five years of phase 3 will be taken up by the staged construction of the uranium Deconversion Plant. Once commissioned, in 2020, the plant will deconvert uranium hexafluoride to a passive oxide form over a period of eight years. The plant includes two additional smaller facilities to process the waste arisings. At the end of operations the plant will be demolished. The drive is to accelerate this work to reduce the uranium hexafluoride hazard at the earliest opportunity.

Quiescent Storage – 2031-2120

Another period of quiescent storage follows as phase 4. During this extended interval (89 years) the uranium storage facilities will require routine maintenance. In 2050 a new store will be built to replace the ageing former diffusion plant buildings. When the new store is commissioned and in use, the redundant buildings will be demolished.

Site End-State – 2120 and beyond

The final phase is driven by the UK's future policy on the storage of uranium material. This material is currently accounted for an asset with no value but potential use in the nuclear fuel cycle. When uranium storage is no longer required, Site Close-Out and delicensing can be complete.

2057 2062 2067 2072 2077 2082 2087 2092 2097 2102 2107 2112 2117 2020

Scope of Work: Diffusion Plant Decommissioning

Phase 1 of the Lifetime Plan for Capenhurst is currently over 90% complete and although uranium storage continues, the main thrust of activity is the decommissioning of the diffusion plant.

Gaseous Diffusion Plant

In 1952 the Gaseous Diffusion Plant was built at Capenhurst to Enrich Uranium (EU) for defence purposes. In the 1960s the plant was converted to commercial production to supply Nuclear Power Stations. By 1982 alternative centrifuge enrichment technology had rendered the diffusion process uneconomic and the Gaseous Diffusion Plant was finally shut down.

In 1995 the Capenhurst Site was confirmed by BNFL as a suitable long term uranic storage facility, and approval was given for a programme to modernise and upgrade the uranium storage facilities housed in the former diffusion plant building.

Bays

The diffusion plant had 23 large sections identified as bays A through to W. Since 1982 the decommissioning and demolition of specific bays has been ongoing.

Since the Lifecycle Baseline (LCBL) this work has been accelerated by over two years and can now be completed in 2008. These remaining bays will be refurbished and retained for the interim storage of uranium until 2050 (See phase 4).

Once the nine bays are stripped of internal plant their ownership is transferred from the diffusion Operating Unit (OU) to the storage OU.

Buildings

The demolition of the diffusion plant buildings concludes with the large structures. After all cladding and brickwork are removed the steel structure is cut up with hydraulic shears and Oxy-Propane cutting.

Waste Management

Processing of the legacy waste inventory is managed as an integrated project. A number of specific processes have been installed to reduce size, monitor and package waste for disposal.

Capenhurst also operates an incinerator in order to reduce the volume and hazard or waste, particularly oily material and solvents. The operation of the incinerator is due to be extended until 2008 to support the Capenhurst and Springfields decommissioning programmes. This is fully supported by the Enviromental Agency (EA) and other stakeholders as the best option for the treatment of the waste.

Other work supported by Capenhurst includes a full scale inactive experimental rig. Nexia Solutions currently operate the facility which is designed to establish the optimum method of removing tank sludges in support of clean-up operations at Sellafield.

Figure 32-6 – **Diffusion Plant Decommissioning scope of work**

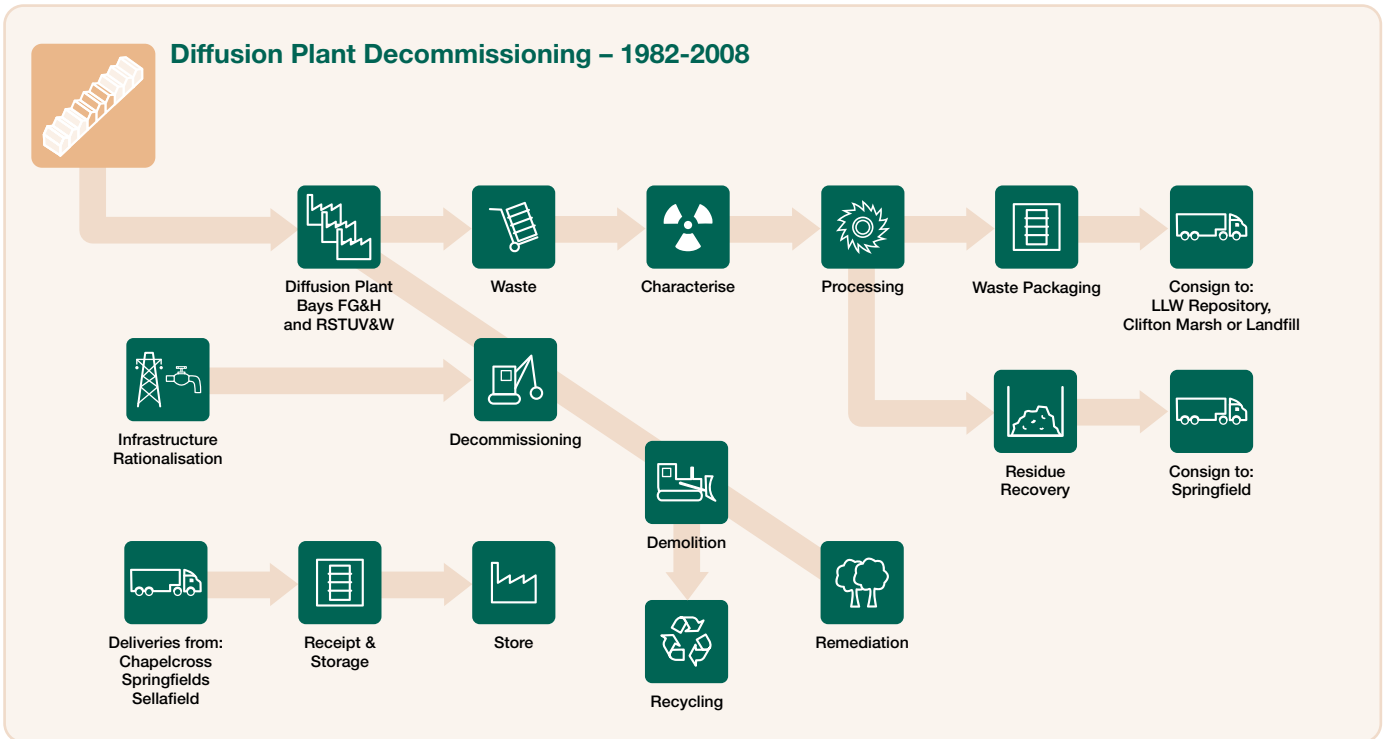
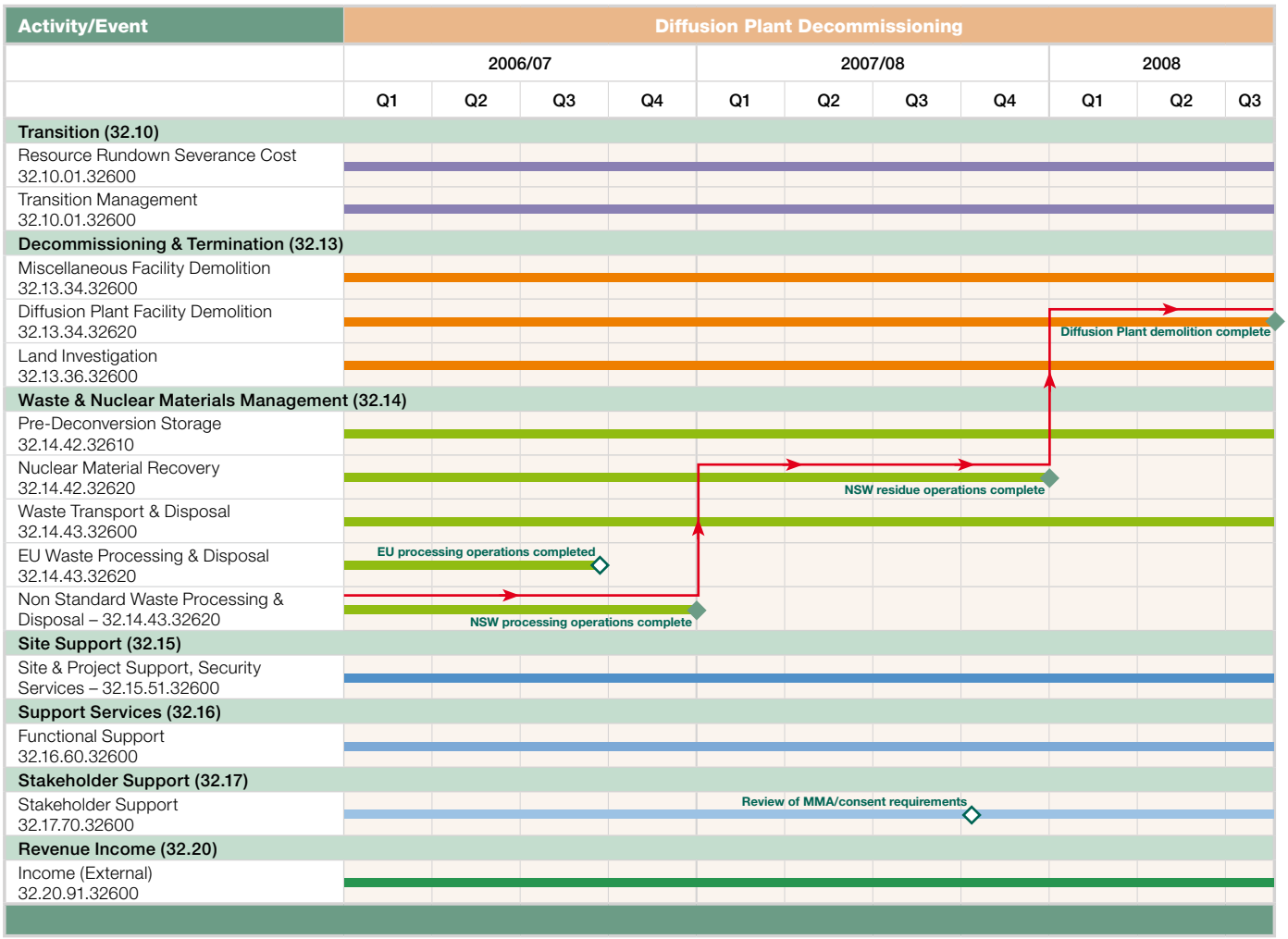


Figure 32-7 – **Diffusion Plant Decommissioning summary work programme**



All date ranges are in Financial Years

Rationalisation

Over the last decade Capenhurst has set about the process of rationalisation of the infrastructure; handing over the responsibility of utilities such as steam and power. Within this period it is intended to hand over further infrastructure such as sewage, water and high voltage electrical supplies (chiefly to Urenco Capenhurst Ltd.).

Transition

Besides the obvious physical changes to site during this phase, one of the biggest impacts will be the reduction of staff numbers. In 2008, prior to the start of the first quiescent period, Capenhurst will reduce staff levels by 80% from current levels of 159 down to 20.

Reconciliation to the last plan

The Diffusion plant decommissioning previously scheduled to finish in 2010 is accelerated to start the first quiescent phase in 2008. This reduces costs by removing operational overheads at the earliest opportunity.

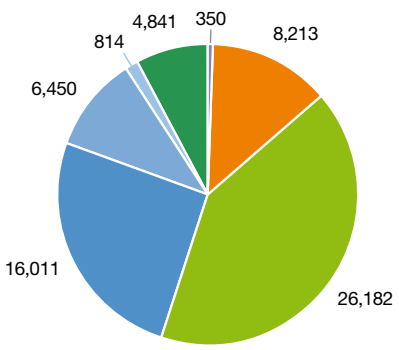
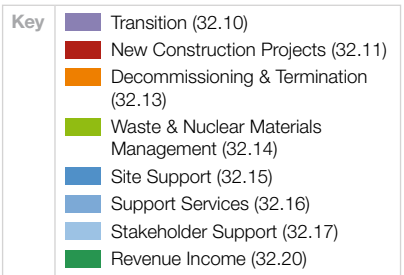


Figure 32-8 – **Diffusion Plant Decommissioning cost distribution by category (£k)**



Quiescent Storage

Nine of the 23 bays of the diffusion plant will not be demolished, but will be refurbished and retained for a further 40 years for the storage of uranium. Phase 2 is an initial short term quiescent storage period that precedes the construction of the new uranium hexafluoride deconversion facility.

Storage

The storage of depleted uranium materials will continue until the year 2120 (the end of phase 4) on the basis that nuclear material is either stored until reused or sent to a long term repository (see phase 5). The stock of depleted uranium is contained in drums and larger cylinders meeting International Safeguards requirements.

Other nuclear materials, such as slightly enriched uranium and material contaminated with tritium are stored at Capenhurst, but the bulk of storage capability is allotted to depleted uranium in the form of oxide or hexafluoride.

Additional quantities of depleted uranium are stored at Chapelcross and generated at Sellafield as part of the Magnox reprocessing operations. These materials will be transported and stored at Capenhurst during phase 2 of this Lifetime Plan. Older mild steel drums at Capenhurst will be repackaged into stainless steel overpacks as required to ensure their integrity for the next 120 years.

Preparation

As the first quiescent period, phase 2 will demonstrate the activities required over the longer term phase 4.

Capenhurst will be the first site in the UK to reach this state. To ensure this can be achieved a number of specific activities are planned to address the complexities of managing the site in a quiescent condition.

The challenge for phase 2 will be to achieve a low cost sustainable regime that must meet all of the Nuclear Site Licence conditions. Phase 1 will be pivotal in defining this state and delivery over this period will underpin the longer term strategy.

Although there will be very little direct site activity, the effort to maintain quiescence should not be underestimated. Some key requirements for this are listed blow:

- Ensuring suitably qualified and experienced staff are available.
- Safety Management.
- Monitoring and reporting.
- Maintaining site interfaces.
- Financial controls.

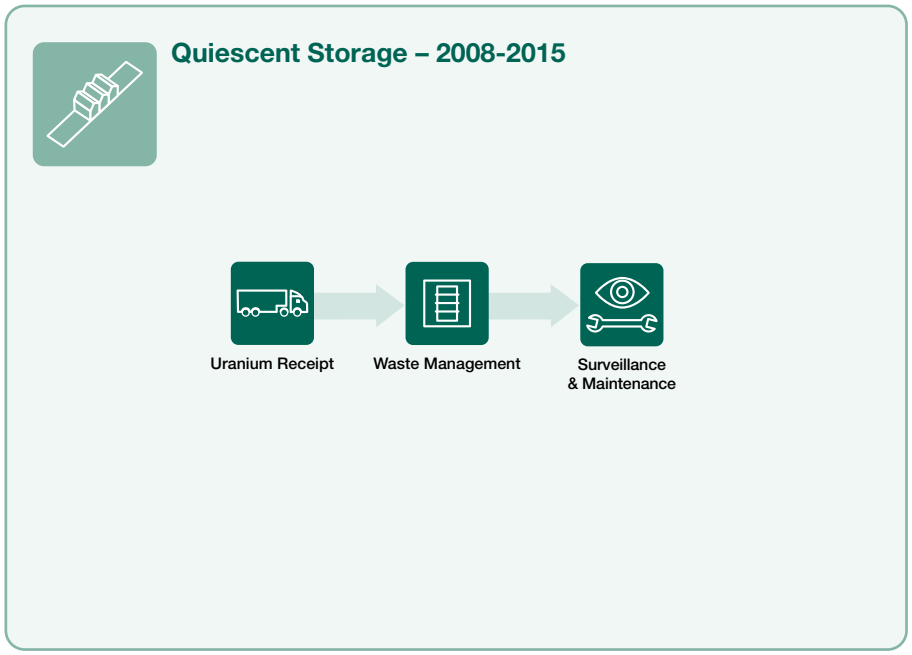
The site must maintain licensed through the appointment of persons to key roles as Service Providers, Intelligent Customers or Receiving Managers.

Other Activities

Phase 2 begins once the Diffusion Plant demolition is concluded and independent of this, several minor work streams at Capenhurst continue. For example current contractual commitments with site tenants do not conclude until 2015 requiring the discharge of landlord responsibilities.

Towards the end of phase 2 the need to engage with stakeholders in preparation for the deconversion plant will begin. To ensure the plant can be built on time, early analysis of the Best Practicable Environmental Option/Best Practicable Means (BPEO/BPM) studies are vital. These integrate closely with the feasibility studies that are the precursor to formal design work.

Figure 32-9 – **Quiescent Storage scope of work**



Hexafluoride cylinders stacked to maximise capacity within the uranium storage building. Overhead cranes are used to position the cylinders into their long term storage positions safely.

Some uranium hexafluoride cylinders are currently stored outside. In line with the long term project, the transfer of the cylinders into the refurbished diffusion plant buildings will continue.

Figure 32-10 – **Quiescent Storage summary work programme**

Activity/Event	Quiescent Storage					
	2008-10	2010/11	2011/12	2012/13	2013/14	2014/15
Transition (32.10)						
Resource Rundown Severance Cost 32.10.01.32600						
Transition Management 32.10.01.32600		Transition management complete				
New Construction Projects (32.11)						
Uranium Deconversion Facility 32.11.12.32610					Deconversion plant construction contract placed	
Decommissioning & Termination (32.13)						
Miscellaneous Facility Demolition 32.13.34.32600	Incinerator demolition complete					
Diffusion Plant Facility Demolition 32.13.34.32620						
Land Investigation 32.13.36.32600						
Waste & Nuclear Materials Management (32.14)						
Pre-Deconversion Storage 32.14.42.32610						
Waste Transport & Disposal 32.14.43.32600		Disposal operations complete				
Site Support (32.15)						
Site & Project Support, Security Services – 32.15.51.32600	Site Transition to Cat 4					Leased building maintenance ends
Support Services (32.16)						
Functional Support 32.16.60.32600						
Stakeholder Support (32.17)						
Stakeholder Support 32.17.70.32600						PCSR Available for Deconversion Plant
Revenue Income (32.20)						
Income (External) 32.20.91.32600			West Cheshire College Building rent ends			

Key: Critical Path; Other Paths of Concern; Regulatory Milestone; Other Milestone

All date ranges are in Financial Years

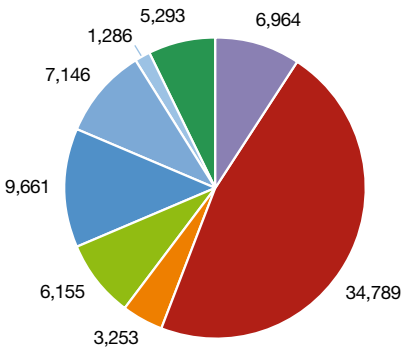


Figure 32-11 – **Quiescent Storage cost distribution by category (£k)**

Key: Transition (32.10); New Construction Projects (32.11); Decommissioning & Termination (32.13); Waste & Nuclear Materials Management (32.14); Site Support (32.15); Support Services (32.16); Stakeholder Support (32.17); Revenue Income (32.20)

Uranium Deconversion

The first five years of phase 3 will be taken up with the staged construction of the Uranium Deconversion Plant. Once commissioned, in 2020 the plant will deconvert uranium hexafluoride (UF_6) to a passive oxide form over a period of eight years. The plant will then be demolished.

Deconversion

Uranium mined from the earth is in the chemically stable oxide form. It is converted to uranium hexafluoride (UF_6) as the form needed for uranium to be enriched. The enriched uranium containing between 3 to 5% of the 235U isotope is used as fuel for commercial nuclear power plants. The by product of the enrichment process is depleted UF_6, containing about 0.3 percent 235U. The priority for safe long term storage of this material is to reduce hazard. This is best achieved by changing the UF_6 back to the more chemically stable uranium oxide form. This process is called deconversion.

The plant will include additional facilities to process the waste arising.

Stakeholder Involvement

The construction of this plant will require a number of major approvals before construction can start and before operations begin. In addition to the engineering design and construction work the process for new plants includes the following steps:

- Public Consultation.
- New Environmental Authorisations.
- Safety Case and Licensing Approvals.
- European Competition Notifications.

Construction

The plant is based on a modular design similar to plants currently operating in the UK and abroad. During the five years construction period the population on site will peak at around 140 workers. These workers will require a range of conventional and specific skills to ensure the programme is delivered effectively.

The construction and commissioning of the additional facilities to wash and size reduce the old UF_6 cylinders is staged alongside the main plant.

Operations

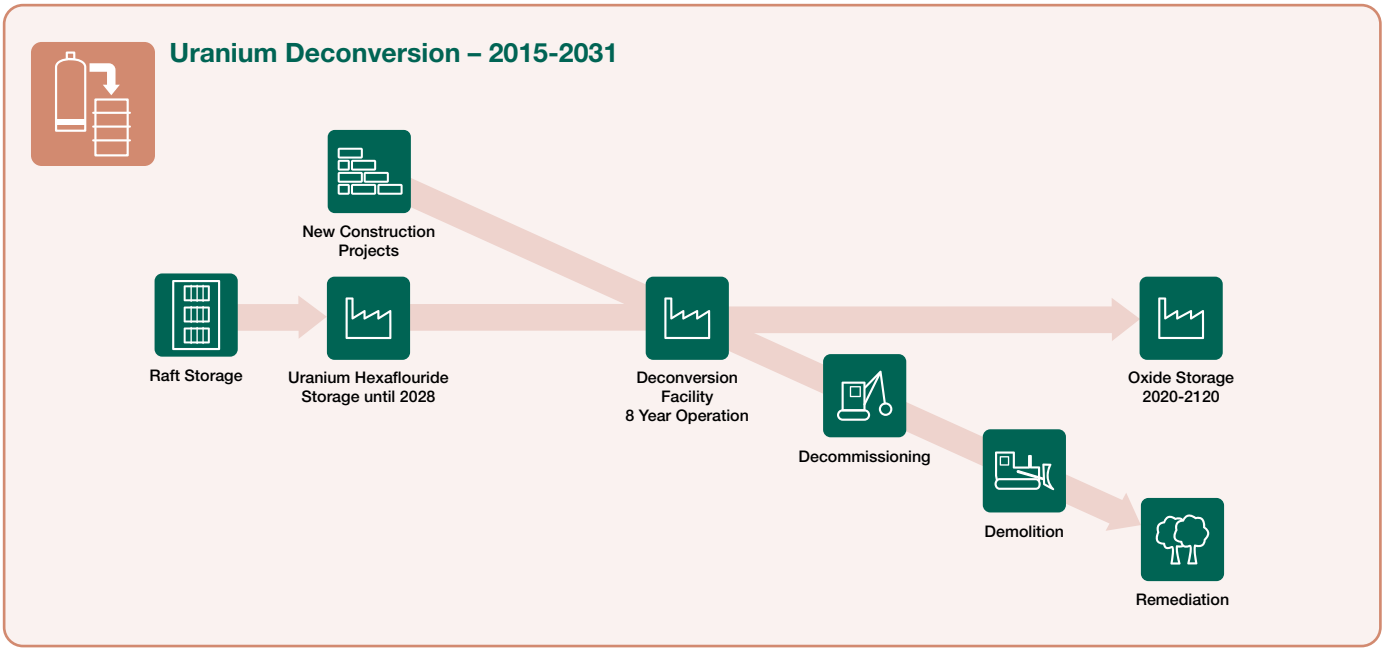
In 2020, after commissioning, the deconversion plant will begin to process the 40,000 tonnes of UF_6 to the more stable uranium oxide form. During deconversion operations around 80 full time workers will be employed on a full shift basis.

The process will involve the heating of the cylinders in an autoclave in order to convert the UF_6 into a gaseous form. The gaseous UF_6 is then fed into a rotary kiln and via the addition of hydrogen, and water in the form of steam, converted into uranium oxide.

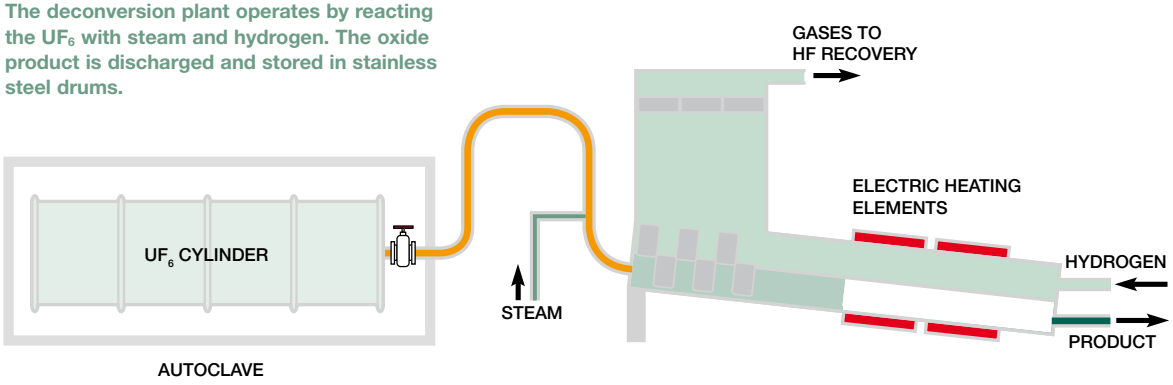
At the end of phase 3 all of the Uranic material at Capenhurst will exist in a passively safe form.

During the latter period of phase 3, and following the plant demolition, Capenhurst will move into the second quiescent period. Workforce levels will then decrease to a minimum level of 30.

Figure 32-12 – **Uranium Deconversion scope of work**



The deconversion plant operates by reacting the UF_6 with steam and hydrogen. The oxide product is discharged and stored in stainless steel drums.



Key
- Critical Path
- Other Paths of Concern
- Regulatory Milestone
- Other Milestone

Figure 32-13 – **Uranium Deconversion summary work programme**

Activity/Event	Uranium Deconversion							
	2015-17	2017-19	2019-21	2021-23	2023-25	2025-27	2027-29	2029-31
Transition (32.10)								
Resource Rundown Severance Cost 32.10.01.32600								
New Construction Projects (32.11)								
Uranium Deconversion Facility 32.11.12.32610			Deconversion plant construction start	Deconversion plant commissioning complete				
Decommissioning & Termination (32.13)								
West Cheshire College & Remaining Demolition – 32.13.34.32600			West Cheshire College demolition complete					
Site Service Infrastructure Demolition 32.13.34.32600								
Hex Deconversion Plant Demolition 32.13.34.32610								
Waste & Nuclear Materials Management (32.14)								
Uranium Deconversion 32.14.42.32610				Deconversion plant operations start				
Pre-Deconversion Storage 32.14.42.32610							Tritiated material available for release	
Post-Deconversion Storage 32.14.42.32610								
Site Support (32.15)								
Site & Project Support, Security Services – 32.15.51.32600								
Support Services (32.16)								
Functional Support 32.16.60.32600	Enhanced EHS&Q support starts							
Stakeholder Support (32.17)								
Stakeholder Support 32.17.70.32600				POSR available for deconversion plant		Review of emergency arrangements		
Revenue Income (32.20)								
Income (External) 32.20.91.32600								

All date ranges are in Financial Years

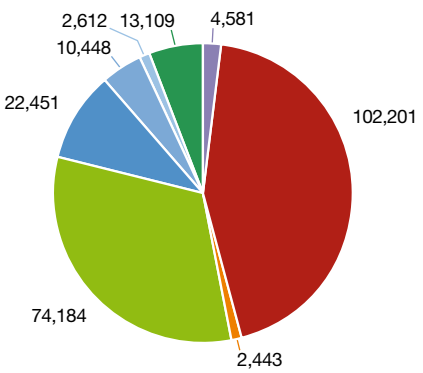


Figure 32-14 – **Uranium Deconversion cost distribution by category (£k)**

Key
- Transition (32.10)
- New Construction Projects (32.11)
- Decommissioning & Termination (32.13)
- Waste & Nuclear Materials Management (32.14)
- Site Support (32.15)
- Support Services (32.16)
- Stakeholder Support (32.17)
- Revenue Income (32.20)

Quiescent Storage

Another period of quiescent storage follows at phase 4. During this extended interval (89 years) the Uranium storage facilities will require routine maintenance. In 2050 a new store will be built to replace the ageing former diffusion plant buildings.

UK Strategy

The UK strategy for the continued storage of uranium is linked to the whole nuclear debate (see phase 5) but continued storage of the material will ensure that if a viable use is found, it will be readily available.

Uranium demand

At the end of 2004, the International Atomic Energy Agency counted some 440 nuclear power reactors worldwide, with over 100 more planned. There is now a greater demand for uranium reflected in recent price rises. Only around 60% of global uranium is obtained from mining with the remainder met from existing inventories like that stored at Capenhurst. In addition to the material at Capenhurst there is currently 20,000 tonnes stored at Sellafield.

Assumptions

For this Lifetime Plan a number of assumptions have been made in accordance with the current policy for uranium storage. This policy is under review and will be owned by the Nuclear Decommissioning Authority (NDA) as a UK strategy. The review will be used as the basis for future baselines.

Current policy dictates that the material is an asset with zero value. This represents the uncertainty over future use while acknowledging the potential by not declaring it as a waste. There is a risk that, should no use be found, the material will be declared a waste. Storage of waste is not considered a long term proposition and so large costs would be incurred developing a final disposal solution.

In either regard, the drive of the NDA is to ensure best value for the UK taxpayer. Challenges to the Lifetime Plan will ensure that value for money is considered throughout the lifetime of the site.

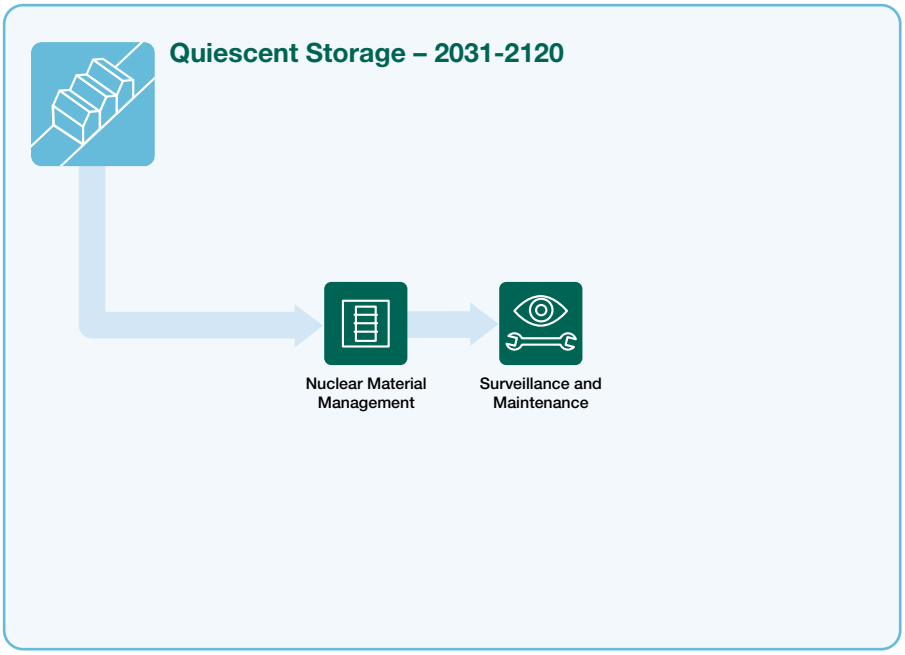
New Uranium store

Similar to the earlier quiescent phase, and the current storage regime, the steady state activities of storing uranium will continue throughout this phase. There are no planned requirements to move or access the drums on a routine basis and the activities will be based on inspection and monitoring. Despite regular maintenance, it is assumed that by 2050 the existing buildings will be uneconomical to repair and a new storage facility, at a cost of around £50 million, will be needed to house the Uranium Oxide. The former diffusion plant buildings, bays I to Q will then be demolished once the material is transferred to the new facility.

Research and Development

In addition to the current fuel cycle there are a number of research projects that may increase the demand and use for uranium both in the nuclear and wider industries. There are also opportunities to further reduce the long term storage cost through technical innovation. One option under review is to enhance the current storage building maintenance to negate the need for the new store in 2050.

Figure 32-15 – **Quiescent Storage scope of work**



An artist's impression of the new uranium store. This image shows the existing structure already demolished.

The current storage arrangement for uranium hexafluoride cylinders is in rows stacked up to five high.

Key
- Critical Path
- Other Paths of Concern
- Regulatory Milestone
- Other Milestone

Figure 32-16 – Quiescent Storage summary work programme

Activity/Event	Quiescent Storage					
	2031-45	2045-60	2060-75	2075-90	2090-2105	2105-20
Transition (32.10)						
Resource Rundown Severance Cost 32.10.01.32600						
New Construction Projects (32.11)						
Post-Deconversion Storage Facility 32.11.12.32610		Uranic store construction start; Uranic store construction contract placed; Uranic office construction complete				
Decommissioning & Termination (32.13)						
Original Storage Facility Demolition 32.13.34.32610						
Site Support (32.15)						
Site & Project Support, Security Services – 32.15.51.32600						
Support Services (32.16)						
Functional Support 32.16.60.32600						
Stakeholder Support (32.17)						
Stakeholder Support 32.17.70.32600						
Revenue Income (32.20)						
Income (External) 32.20.91.32600						

All date ranges are in Financial Years

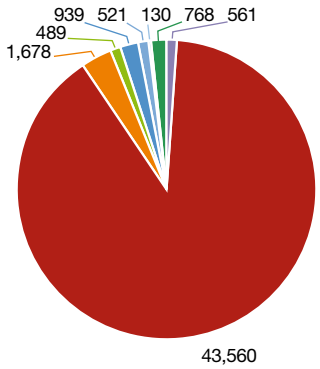


Figure 32-17 – Quiescent Storage cost distribution by category (£k)

Key
- Transition (32.10)
- New Construction Projects (32.11)
- Decommissioning & Termination (32.13)
- Waste & Nuclear Materials Management (32.14)
- Site Support (32.15)
- Support Services (32.16)
- Stakeholder Support (32.17)
- Revenue Income (32.20)

Site Close-Out

The final phase is termed 'site clearance' and is driven by the UK's future policy on the storage of uranium material. This material is currently an asset with potential use in the nuclear fuel cycle. When uranium storage is no longer required, site close-out and delicensing can be completed

Uncertainty

The actual end date of phase 5 is uncertain for two primary reasons:

- A political decision on whether or not to build a national repository has not yet been made. If it is built, the uranium currently stored at Capenhurst could be transferred to the repository and the end date of Capenhurst Site brought forward.
- The uranium currently stored at Capenhurst is a national asset. Through a process of enrichment it can be used as fuel for nuclear power reactors.

There is obviously much debate surrounding these issues and the outcome will be reflected in the future policy for uranium storage at Capenhurst.

Assumptions

For this Lifetime Plan the guidance is that final disposal of the uranium stored on site should not be assumed.

In the absence of reuse in the fuel cycle or other alternative uses, the material will remain on site and the timing of the site end state is undefined.

Exclusion of Site Close-Out

Given the above assumption there is no defined site close out for Capenhurst. However it is clear that at a point in the future the land is likely to have other uses and it is essential to determine the best options and develop a strategy to achieve that goal.

Capenhurst has taken a number of practical steps to achieving this by conducting a full land characterisation survey, detailed chemical and radiochemical characterisation in tandem with geologic and hydrogeologic investigation. An array of boreholes has been established across site to monitor groundwater condition. This is in addition to the routine monitoring of the aerial and liquid discharges from site.

The results of this survey are underpinning the structure to a BPEO study for the management of specific areas. It is incumbent upon sites like Capenhurst to use the BPM and advances in technology could bring forward the final end date or affect the projected end state of the site.

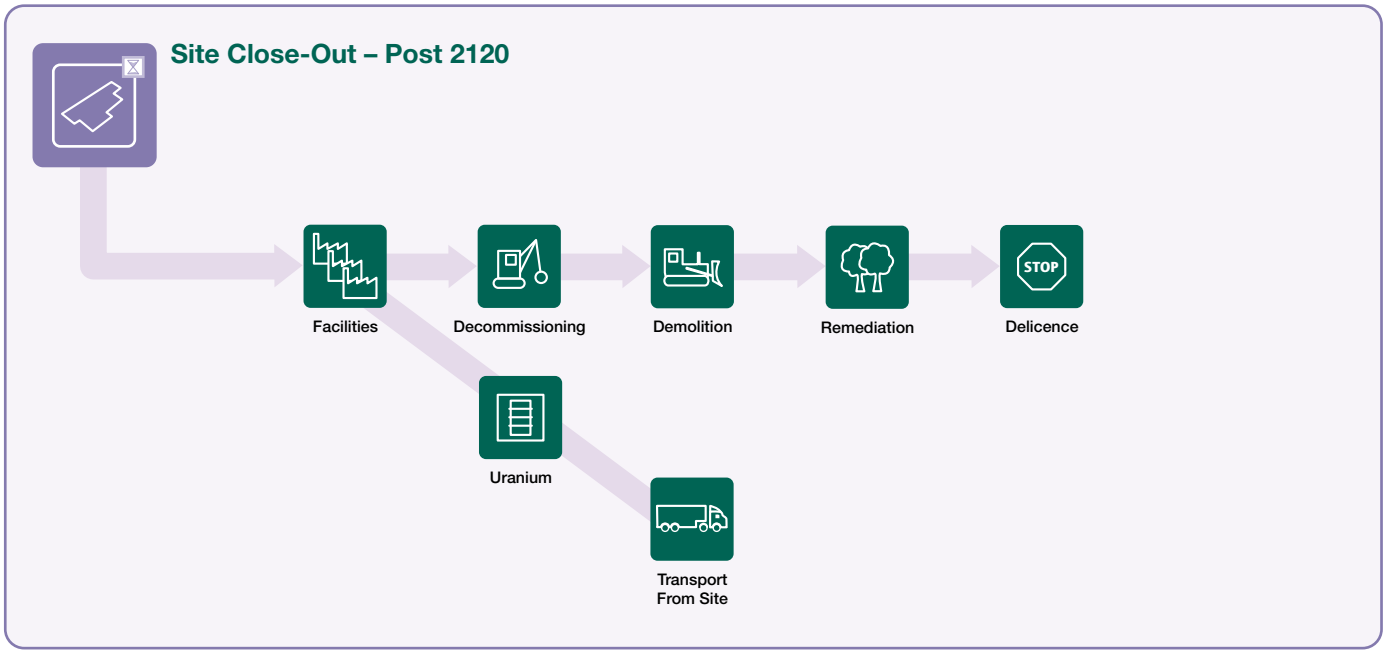
Factors

The final End State of Capenhurst, once all buildings are demolished, comes down to two options; brownfield or greenfield.

The brownfield option, currently favoured, involves the removal of all buildings and the sowing of meadow grass over the building slabs, The greenfield option involves complete removal of surface and subsurface structures and remediation of ground back to a standard common state with surrounding rural land, which would involve substantial additional expediture.

Linked to the state of the land is the presence of the Nuclear Site Licence. For the licence to be lifted, it requires a condition of 'no-danger' to be reached, but this term is not yet clearly defined. Without removal of the nuclear licence, future development of the site would be heavily restricted.

Figure 32-18 – **Site Close-Out scope of work**



The storage of uranium oxide material is in stainless steel drums each weighing 600kg.

Figure 32-19 – **Site Close-Out summary work programme**

This aerial view represents the possible post-2120 End-State, where all buildings have been demolished on the British Nuclear Licensed Site.

Near Term Work Plan (Years 1 to 3)

During the next three years of the plan the decommissioning of the diffusion plant will be completed and site liability will be reduced.

Challenges

Over the next three years the work required at Capenhurst is clearly defined and the waste processing, demolition and storage operations that comprise the scope of work is being delivered by the current project teams.

However, in addition to the visible changes described in phase 1 there are a number of significant but less obvious activities.

The long history of operations at Capenhurst and the shared site boundaries have resulted in complex interfaces that need to be redefined.

Perhaps the principle change will be the cutback in staff numbers. Across all three OUs, personnel numbers will drop from 159 in 2006 to 20 by 2008 – a reduction of over 80%.

Control

Working closely with regulators is essential. There are a raft of measures required to demonstrate that the excellent safety record can be maintained and the changes are formally managed and notified in advance. To ensure that the site remains licensed, strong links with the Sellafield Site are required and the ability to draw on responses to facilitate this.

With the creation of the NDA there are now new incentives to create better solutions, accelerate work and improve efficiency. Some of the areas targeted in these three years include:

- Removal of site services where no longer required.
- Sale of unused land to Urenco.
- Transfer of assets to Urenco.
- BPEO demonstration for the retention of building slabs.
- The outsourcing of functional departments.

Constraints

British Nuclear Group as the Nuclear Licence Holder must maintain the capability to discharge the Site Licence Conditions. Key to this is availability of Suitably Qualified and Experienced Personnel (SQEP). Over the last two years the workforce has already reduced from over 300 full time equivalents and good stakeholder relations have been essential to achieving this cooperatively.

There remains many groundbreaking stakeholder, regulatory and legal issues to resolve in transforming from a Decommissioning site to a quiescent storage facility. Through extensive experience of consultation, challenge and justification, British Nuclear Group will develop a fit for purpose operating model.

Prioritisation

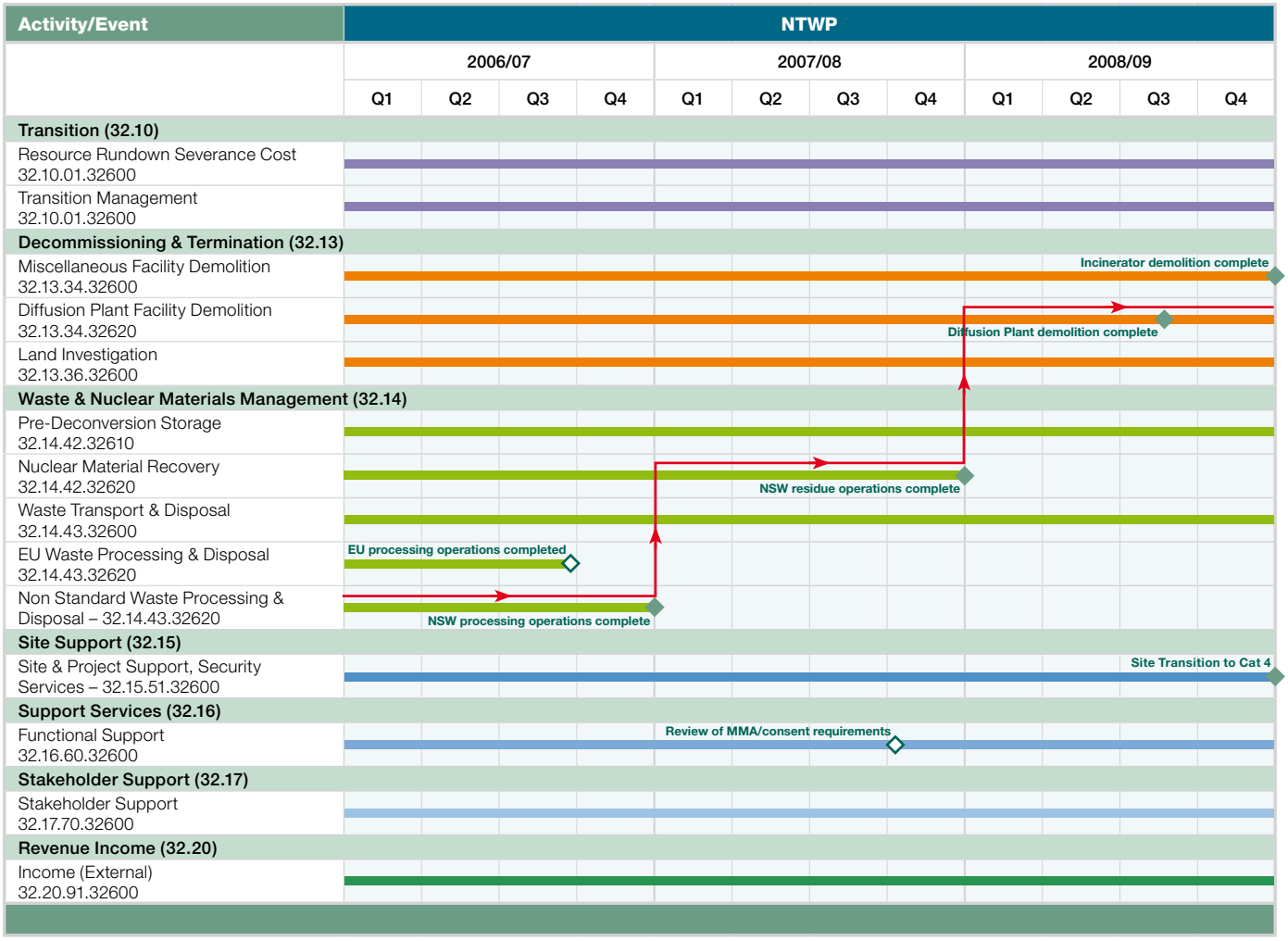
Consequently, and in order that the management team make the right decisions, Capenhurst will also follow a defined prioritisation logic. This logic ensures that all essential safety and regulatory controlled work are performed before discretionary work is undertaken.

Figure 32-20 – **NTWP (Years 1 to 3) scope of work**

Commissioning activities on the cylinder washing and cut-up being built at Capenhurst.

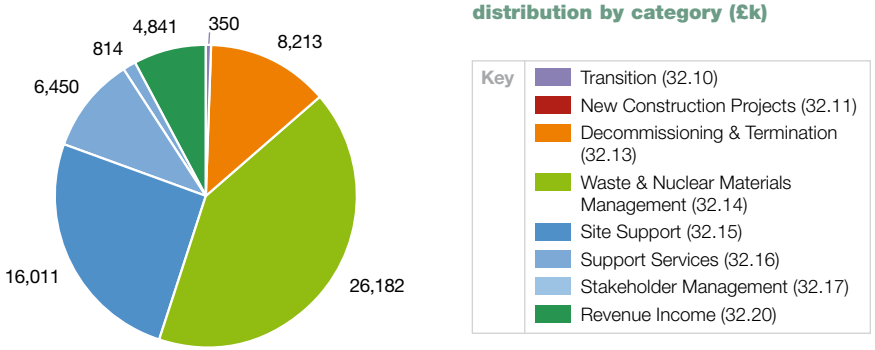
The continued safe demolition of buildings, which are redundant to the ongoing storage business within the first three years of the Lifetime Plan.

Figure 32-21 – **NTWP (Years 1 to 3) summary work programme**



All date ranges are in Financial Years

Figure 32-22 – **NTWP (Years 1 to 3) cost distribution by category (£k)**



Major Assumptions & Exclusions

Assumptions are made throughout the site's Lifetime to move from a position where uncertainty exists to one that provides a firm basis for the work, allowing it to be fully scoped, scheduled and costs to be estimated.

Figure 32-23 – **Major assumptions by category**

LCBL

Category	Assumptions	Justification
02/00040 Deconversion Plant – Design and Build		
32.11.12.32610	The estimate for the deconversion facility is based upon the use of existing proven technology.	Future process developments may change the basis of estimate, impacting upon procurement and build costs.
	The facility will be procured by the Management & Operations contractor as an NDA facility on the NDA Capenhurst Site.	Alternative strategies are to be developed and reviewed that may lead to cost opportunities.
02/00280 Storage Demolition		
32.13.34.32610	The existing facility will remain fit for purpose until the new facility is completed and all materials transferred to it in accordance with this baseline.	Current assessment is based upon demolition of current store following commissioning of new store, demolition is dependant the current store being unsustainable.
02/00300 Uranium Deconversion Operations & Maintenance		
32.14.42.32610	All depleted uranium hexaflouride tails (UF_6) material will have been converted back to depleted uranium oxide (U_3O_8) powder and stored in stainless steel drums within facility prior to the start of this workscope.	Deconversion process is completed to schedule and will extend resource required into storage phase.
02/20196 Maintenance of Leased Buildings		
32.15.51.32600	Existing Tenancy agreements will continue until 2015.	Maintenance are included to this date, as is the associated income.
02/29124 Site Security & Welfare Services		
32.15.51.32600	Introduction of competition will not result in notices of withdrawal on existing Urenco contracted services.	Assessment does not include any necessity of provision of external services to cover those currently provided by Urenco.
02/00740 Income (External)		
32.20.91.32600	Tenant fulfils condition of lease.	Early surrender will impact upon income.

NTWP

Category	Assumptions	Justification
32.10.29102 Workforce Restructuring		
32.10.01.32600	Necessary reductions are achieved by severance, redeployment or natural wastage.	Every effort is being made to avoid the necessity for enforced redundancy which would not only impact cost but also on external public relations and local unions.
32.10.29102 Workforce Restructuring		
32.10.01.32600	Severance provisions are based on the assumption that not all the workforce will leave under severance as some will leave by redeployment or natural wastage therefore at nil cost. Additionally the severance forecast assumes that all eligible employees of 50 years + will take the VPR option – this results in ongoing severance liability to 2036.	This assumption is dependant upon individual circumstances and is underpinned by strategy discussions between Human Resources and individuals. Any changes to the assumed ratios will impact the cost base.
32/20191 Contaminated Waste Management & Disposal Operations		
32.14.43.3600	Regulator Supports Decommissioning Programme, Discharge authorisations remain unchanged, Disposal Site Conditions for Acceptance, radiological and volumetric Capacity enables unhindered disposals.	Current assessment is based on no restrictive levels on Waste Streams, any such restrictions may impact upon schedule and cost.
32/20187 Non-Standard Waste Processing		
32.14.43.32620	Material can be disposed directly for uranium recovery and subsequent direct disposal from Springfields of the resultant waste material. Low Level Waste Repository accept conditioned Waste.	Disposal route assessments are based upon information prior to processing, changes to levels of processing achieved may impact upon disposal.
32/29104 Plant & Project Support (Cape)		
32.15.52.32600	Assets (Raw water, Sewage Farm, Main Admin and Management Building and Substations) will be transferred to Urenco.	Current assessment excludes any decommissioning or alteration to the services.
32/29128 Site Management		
32.16.60.32600	Urenco will acquire appropriate authorisations in line with British Nuclear Group project time scales.	Required to support the Capenhurst Transition plan.

NTWP

Figure 32-24 contains the key assumptions underpinning Capenhurst's lifetime.

These assumptions are made to enable production of a comprehensive plan. If the assumptions are considered to be 'unstable, ie they are likely to change then a risk management plan will be developed to manage the potential impact of changes.

The key assumption for the lifetime is that the final disposal of the uranium from site is not included. Within this there are a number of future options that need to be evaluated and challenged in future baselines.

Figure 32-24 – Major exclusions by category

LCBL

Category	Exclusions	Justification
02/00280 Storage Demolition		
32.13.34.32600	Additional removal of infrastructure below ground level – eg the concrete slab.	Currently agreed end state for the site has building slabs remaining in situ and landscaped over.
02/00400 Post Deconversion Storage Operations & Maintenance		
32.14.42.32610	All work post 2120 is excluded and is subject to further review. This excludes final disposal of stored uranic materials and the demolition of the storage facility.	In Accordance with NDA guidelines.
02/29127 Functional EHS&Q Support		
32.16.60.32445	Changes to address establishment of 'quasi' or actual separate Site Licence Company.	Driven by customer requirements on competition. Substantial work would be required to establish Capenhurst as a separate licensed entity.
02/29132 Regulatory Support		
32.17.70.32600	Charges arising from reactive inspection following significant events.	Estimates of cost are based on average yearly returns in the current regulatory environment. Costs arising from unforeseen significant events are omitted.

NTWP

Category	Exclusions	Justification
32/29128 Site Management		
32.16.60.32600	Full revision of safety case for reduced fire risks and cover. Safety case manager to advise.	Not currently believed to be necessary but subject to Regulatory agreement. Competition strategy of the site needs to be clear prior to consideration of associated costs.

NTWP

Whilst the lifetime plan is intended to be all inclusive, certain exclusions have been made to the scope of work. Inclusion of this scope would conflict with the assumptions that have been used to determine the site strategy.

In the absence of reuse of the stored uranium in the fuel cycle or other alternative uses, the material will remain on site and the timing of the site end state is therefore undefined. As a consequence, within this baseline all work post 2120 is excluded.

The data for the Site Close-Out work is available and is included within a range of scenario plans as part of the opportunities identified for Capenhurst's future.

Risk Management

Risks have the potential to prevent delivery of the site's Lifetime Plan by delaying work and/or increasing costs. British Nuclear Group processes identify, assess and where necessary mitigate these risks.

Figure 32-25 – **Risk summary**

LCBL	
	Description
	WBS 32.29102 – Resource Rundown
Description	Significant changes to statutory severance arrangements or employment law.
Possible Impact	Changes could increase the cost of undergoing transition.
Mitigation Activities	Monitor proposed changes, advise NDA of any potential adverse impacts. Update site programme to reflect changes.
	WBS 32.20161 – Land Investigation
Description	Land contamination will not be allowed to be managed in situ.
Possible Impact	Delay to operations, increased costs.
Mitigation Activities	Continued discussions with outside expertise.
	WBS 32.20166 – Uranic Storage Operations
Description	Following review of Magnox Depleated Uranium (MDU) policy NDA decide that there is no credible economic use for MDU and classify it as a waste or it is determined that no commercial use will be found for the material and that it should therefore be processed, packaged and transported to a suitable disposal facility.
Possible Impact	Significant cost for disposal off site.
Mitigation Activities	Review of MDU long term storage policy.
	WBS 32.29124 – Site Security & Welfare Services
Description	Nuclear Installations Inspectorate do not agree to reductions ie Emergency Response Scope.
Possible Impact	Lifetime planned cost reductions not achieved.
Mitigation Activities	Discussions with Regulator to establish criteria and transition project/future site strategy development.
	WBS 32.29124 – Site Security & Welfare Services
Description	Revised security plan is not endorsed by Office for Civil Nuclear Security.
Possible Impact	Lifetime planned cost reductions not achieved.
Mitigation Activities	Discussions with Regulator.
	WBS 32.29128 – Site Management
Description	Redundant/capped/isolated underground services can not remain in ground without any further processing.
Possible Impact	Additional costs and resources post-March 06.
Mitigation Activities	Hold initial discussions with regulators. Best Practicable Environmantal Option analysis of available options. Present findings to Regulators.

Risk summary continued

NTWP	
	Description
	WBS 32.29102 – Resource Rundown
Description	Suitably qualified and experienced personnel are not available to deliver the plans.
Possible Impact	Lack of Suitably Qualified and Experienced Persons (SQEP) could result in inappropriate solutions, extended schedules, increased costs.
Mitigation Activities	Retain staff; training programmes; succession management procedures.
	WBS 32.29102 – Resource Rundown
Description	Unable to redeploy employees within organisation.
Possible Impact	Additional severance payouts.
Mitigation Activities	Aspirations meetings to be held to enable timely & targeted approach.
	WBS 32.20210 – Completion of Decommissioning
Description	End State assumptions on remaining site is incorrect and will not be endorsed by regulator.
Possible Impact	Delays to programme and potential to increase site resources.
Mitigation Activities	Provide a detailed transitional plan setting out end state Model.
	WBS 32.20171 – Non Standard Waste Residues
Description	Company wide/national shortage of SQEP resources for Enriched Uranium Criticality Assessment.
Possible Impact	Delay in delivering the plan.
Mitigation Activities	Develop framework agreement & incentives for resources.
	WBS 32.20166 – Uranic Storage Operations
Description	A work 'bottle neck' is created between conflicting projects. Due to poor portfolio management and lack of integrated plan.
Possible Impact	A bottle neck of work is created which has a negative impacts on decommissioning plan.
Mitigation Activities	Integrated portfolio planning.
	WBS 32.29111 – Site Facility Support
Description	Legal issues delay/prevent land disposals to Urenco.
Possible Impact	End state assumptions have been to date that certain facilities will be transferred to Urenco. If this is not legally possible, significant additional costs may be incurred ie facilities management, management of authorised and consented discharges.
Mitigation Activities	NDA Land Workshop scheduled. The outcome is expected to move positively on land transfer issues. British Nuclear Group property manager engaged and Environmental Agency consultation on multimedia authorisations is ongoing.
	WBS 32.29127 – Functional ESH&Q Support
Description	Withdrawal of emergency Planning Service by Urenco.
Possible Impact	Increased costs.
Mitigation Activities	Identify timescale for closure. Challenge validity for withdrawal, agree contract conditions.
	WBS 32.29127 – Functional EHS&Q Support
Description	Regulators do not agree to current End-State assumptions.
Possible Impact	Delay in delivering the plan and significant increase in costs.
Mitigation Activities	End State Project currently being launched to establish key issues and actions required.
	WBS 32.29128 – Site Management
Description	NDA unable to secure sufficient funding to accelerate decommissioning completion from 2010 to 2008.
Possible Impact	Unable to achieve accelerated decommission programme deadline.
Mitigation Activities	(NDA to advise)
	WBS 32.29132 – Regulatory Support
Description	Changes in the regulation of waste disposal facilities.
Possible Impact	Increased cost of disposing of hazardous waste and increased amounts of material being classified as hazardous.
Mitigation Activities	Monitor proposed changes to regulations. Advise Regulatory bodies of any potential adverse impacts.
	WBS 32.29132 – Regulatory Support
Description	Changes to British or international regulations and treaties that affect the management of nuclear facilities.
Possible Impact	Changes could lead to revised strategies thereby impacting adversely on scope schedule and cost.
Mitigation Activities	Monitor proposed changes to regulations. Advise regulatory bodies of any potential adverse impacts.

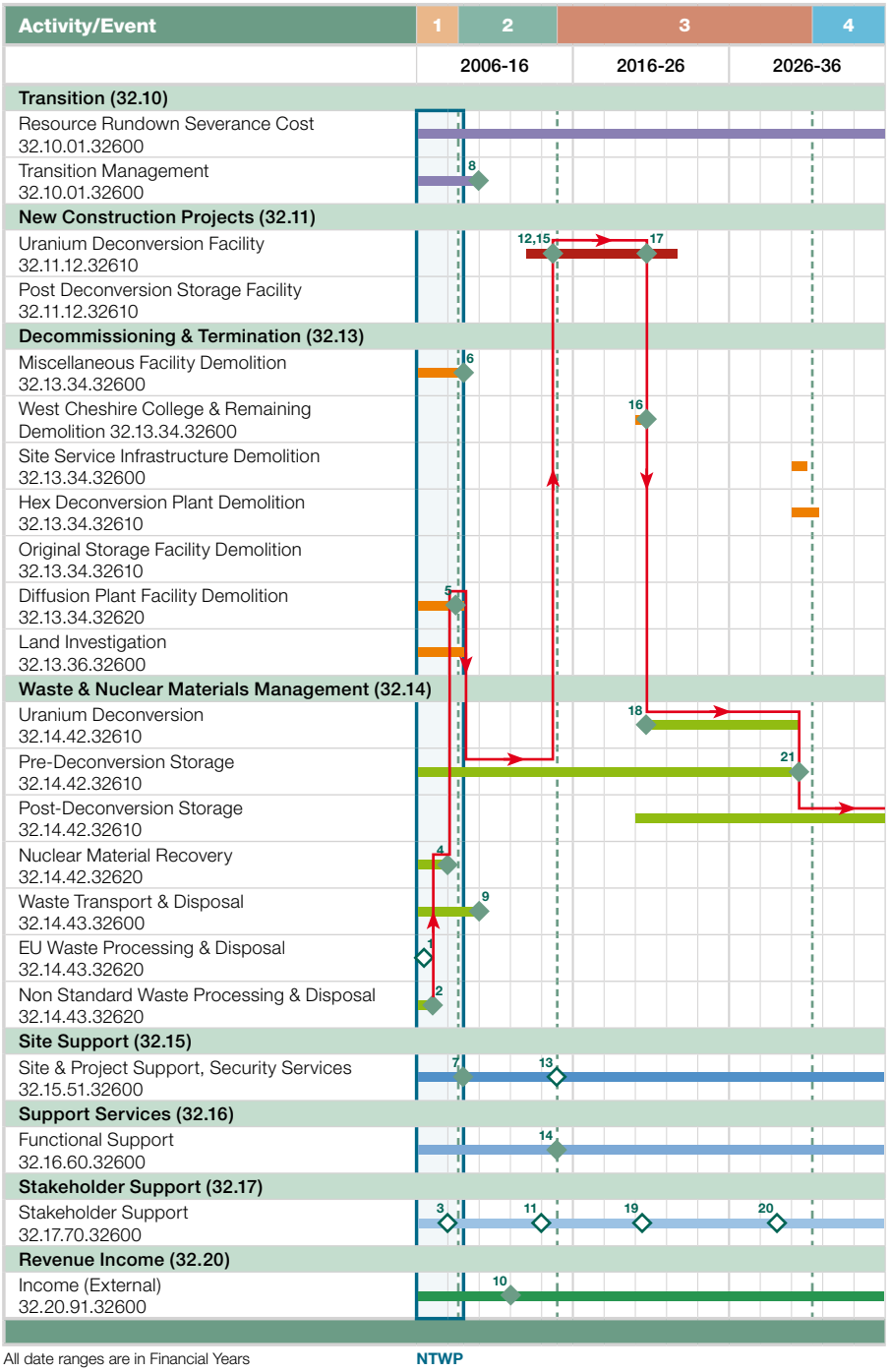
Summary Milestone Schedule

The Milestone schedule shown below represents the key milestones for the Capenhurst Site that will be delivered during the lifetime.

Key milestones

	Date	Description
◇	**Regulatory**	
1	22-12-2006	EU processing operations completed
3	07-01-2008	Review of MMA/consent requirements
11	02-04-2014	PCSR available for deconversion plant
13	31-03-2015	Leased building maintenance ends
19	02-12-2020	POSR available for deconversion plant
20	02-04-2029	Review of emergency arrangements
◆	**Other**	
2	31-03-2007	NSW processing operations complete
4	31-03-2008	NSW residue operations complete
5	21-11-2008	Diffusion Plant demolition complete
6	31-03-2009	Incinerator demolition complete
7	31-03-2009	Site transition to Cat4
8	31-03-2010	Transition management complete
9	31-03-2010	Disposal operations complete
10	30-03-2012	West Cheshire College rent ends
12	26-01-2015	Deconversion plant construction contract placed
14	01-04-2015	Enhanced EHS&Q support starts
15	20-04-2015	Deconversion plant construction start
16	29-07-2020	West Cheshire College demolition complete
17	01-12-2020	Deconversion plant commissioning complete
18	01-12-2020	Deconversion plant operations start
21	20-09-2030	Triated material available for release
22	21-06-2049	Uranic store construction contract placed
23	01-04-2050	Uranic store construction start
24	30-09-2050	Uranic office construction complete

Figure 32-26 – **Lifecycle milestone schedule**

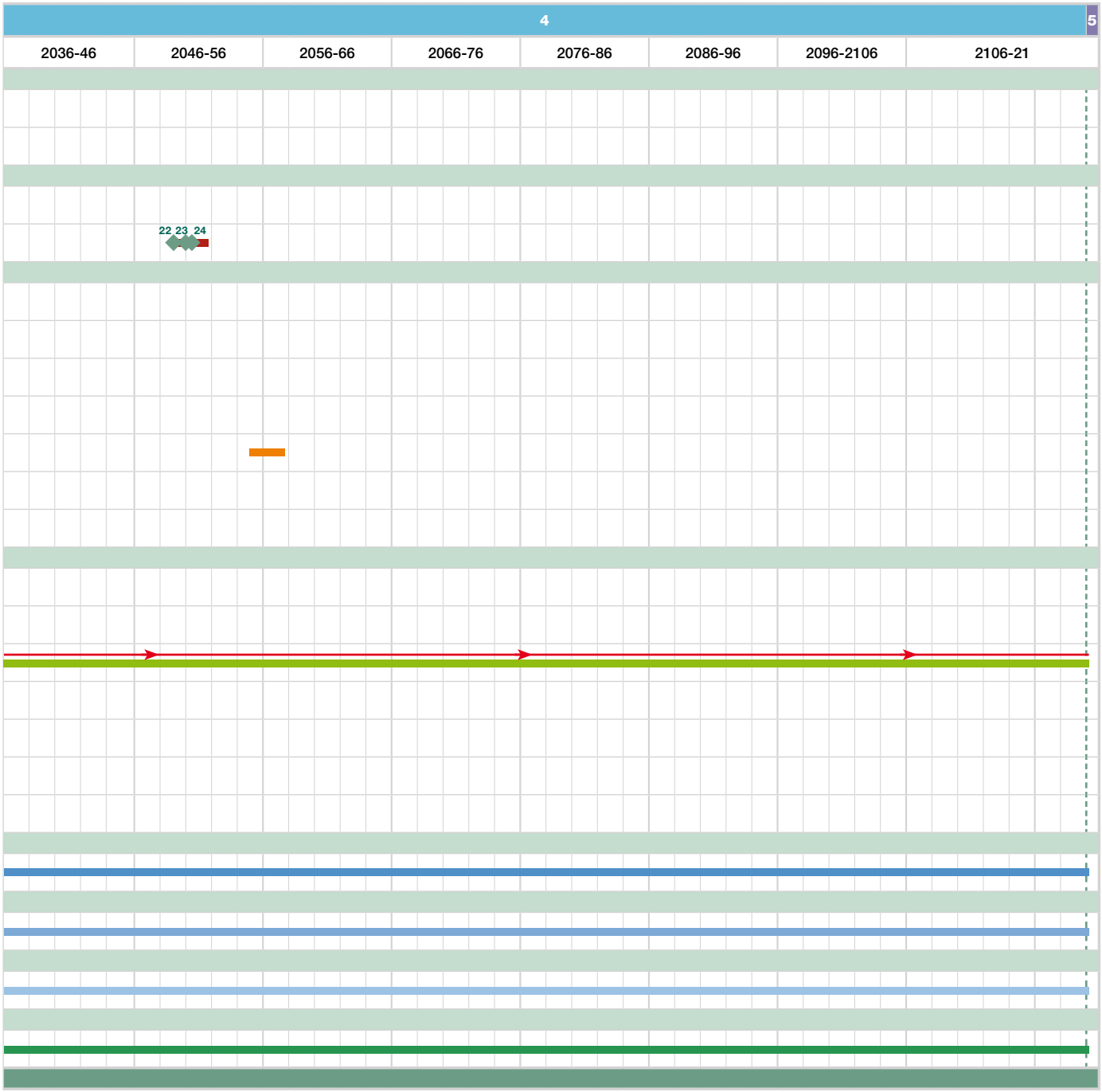


All date ranges are in Financial Years NTWP

Here the former site of C8 and C9 has been landscaped and sown with low maintenance meadow grass.

The packing and dispatch of ISO containers to Low Level Waste Repository is key in reaching overall milestones at Capenhurst set within phase 1 of the site's lifecycle.

Lifecycle milestone schedule – continued



1. Diffusion Plant Decommissioning 2. Quiescent Storage 3. Uranium Deconversion 4. Quiescent Storage 5. Site Close-Out (Post 2120)

Lifetime Plan Value

The following tables show the base, escalated and discounted costs over the lifetime. The reduction in cost shown reflects the decreasing support required. Costs represent the overall decommissioning and liability reduction strategy.

Figure 32-27 – **Summary of costs – present day, escalated and discounted values**

Category	Prior years cost to date (£k)	FYs 2006/07-10/11				
		Year 1 (£k)	Year 2 (£k)	Year 3 (£k)	Year 4 (£k)	Year 5 (£k)
Transition (32.10)	**128**	191	159	0	2,073	1,035
New Construction Projects (32.11)	**0**	0	0	0	0	0
Commercial Operations (32.12)						
Decommissioning & Termination (32.13)	**3,757**	3,535	2,783	1,896	2,794	0
Waste & Nuclear Materials Management (32.14)	**10,727**	9,369	11,850	4,963	1,683	722
Site Support (32.15)	**5,398**	6,007	5,418	4,586	1,349	1,349
Support Services (32.16)	**3,562**	3,163	2,193	1,093	2,570	768
Stakeholder Support (32.17)	**308**	351	291	171	184	184
Fee (32.18)						
NDA Funded (32.19)						
Subtotal	**23,880**	**22,617**	**22,695**	**12,710**	**10,654**	**4,058**
Escalated value			**23,398**	**13,510**	**11,676**	**4,585**
Discounted value			**22,206**	**12,168**	**9,981**	**3,720**
Revenue Income (32.20)	2,442	1,743	1,634	1,464	738	738

All date ranges are in Financial Years NTWP

The estimate is based on historical data for resources and at rates and prices that suitably reflect current levels. The estimate for work between Year 2005/08 is incorporated within Near Term Work Plan (NTWP) 2005.

The project estimating methodology covers all capital, income and resources related to new construction, plant enhancement. Decommissioning, and infrastructure etc.

To ensure a robust estimate and consistency in the estimating approach, a number of basic steps are utilised:

1. Define the project Work Breakdown Structure (WBS).
2. Confirm information package provided for estimating is fit for purpose.
3. Compile estimate against the WBS using applicable tasks, methods and rates.
4. Estimate scope check by information providers.
5. Refine scope and quantities and undertake arithmetic checks.
6. Review the estimate.

Figure 32-28 – **NTWP (Years 1 to 3) cost distribution by category (£k)**

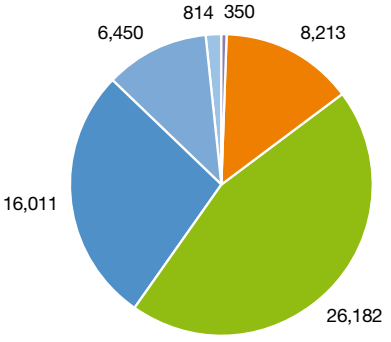


Figure 32-29 – **Years 1 to 5 cost distribution by category (£k)**

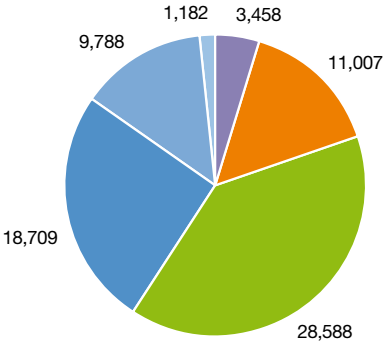
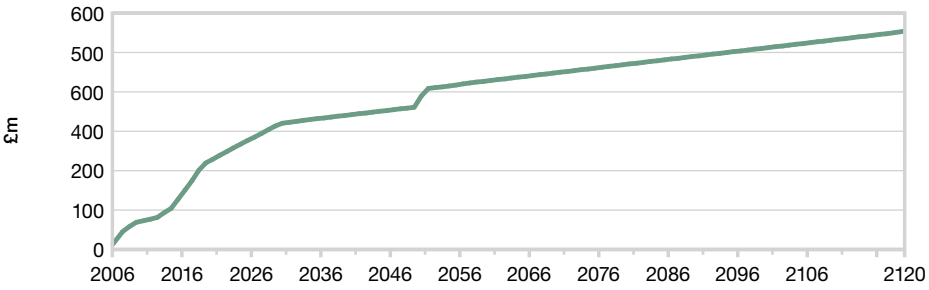


Figure 32-30 – **Budgeted cost of work scheduled (BCWS) profile curve**



This profile curve illustrates the cumulative gross and net cost (excluding income) over the Capenhurst lifecycle.

Summary of costs – present day, escalated and discounted values – continued

Subtotal years 1-5 (£k)	FYs 2010/11-15/16					Subtotal years 1-10 (£k)	Lifecycle balance years 11+ (£k)	Total lifecycle cost (£k)
	Year 6 (£k)	Year 7 (£k)	Year 8 (£k)	Year 9 (£k)	Year 10 (£k)			
3,458	1,035	1,080	580	580	582	**7,314**	**4,560**	**11,874**
0	0	0	8,123	7,151	19,515	**34,789**	**126,246**	**161,035**
11,007	0	459	0	0	0	**11,467**	**4,121**	**15,588**
28,588	722	754	757	757	760	**32,338**	**116,643**	**148,980**
18,709	1,349	1,409	1,414	1,414	1,377	**25,672**	**103,970**	**129,642**
9,788	768	802	805	805	626	**13,596**	**55,793**	**69,389**
1,182	184	192	193	193	157	**2,101**	**13,942**	**16,043**
72,733	**4,058**	**4,697**	**11,872**	**10,900**	**23,016**	**127,276**	**425,274**	**552,551**
75,786	**4,728**	**5,641**	**14,701**	**13,915**	**30,295**	**145,064**	**2,530,739**	**2,675,803**
70,692	**3,640**	**4,122**	**10,195**	**9,158**	**18,922**	**116,729**	**205,110**	**321,839**
6,318	738	771	774	774	777	**10,152**	**80,459**	**90,611**

Figure 32-31 – **Years 1 to 10 cost distribution by category (£k)**

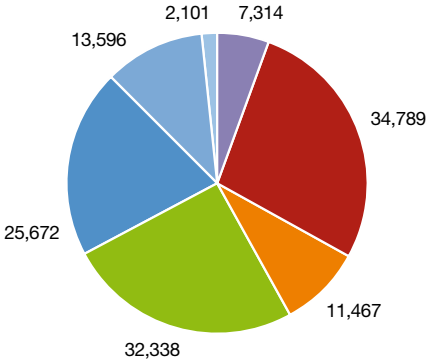
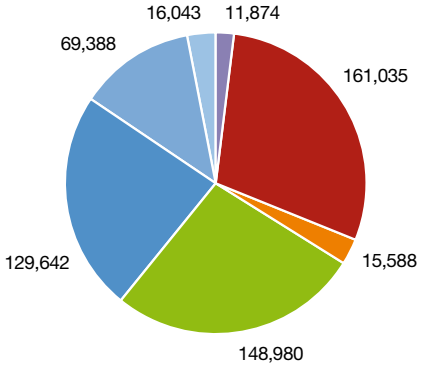
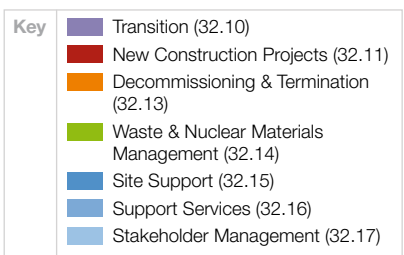


Figure 32-32 – **LCBL cost distribution by category (£k)**





Reconciliation of Costs

The table below identifies cost variances by category between the 2006 Lifetime Plan and the 2005 LCBL. A summary level justification for significant variances is also contained within the table.

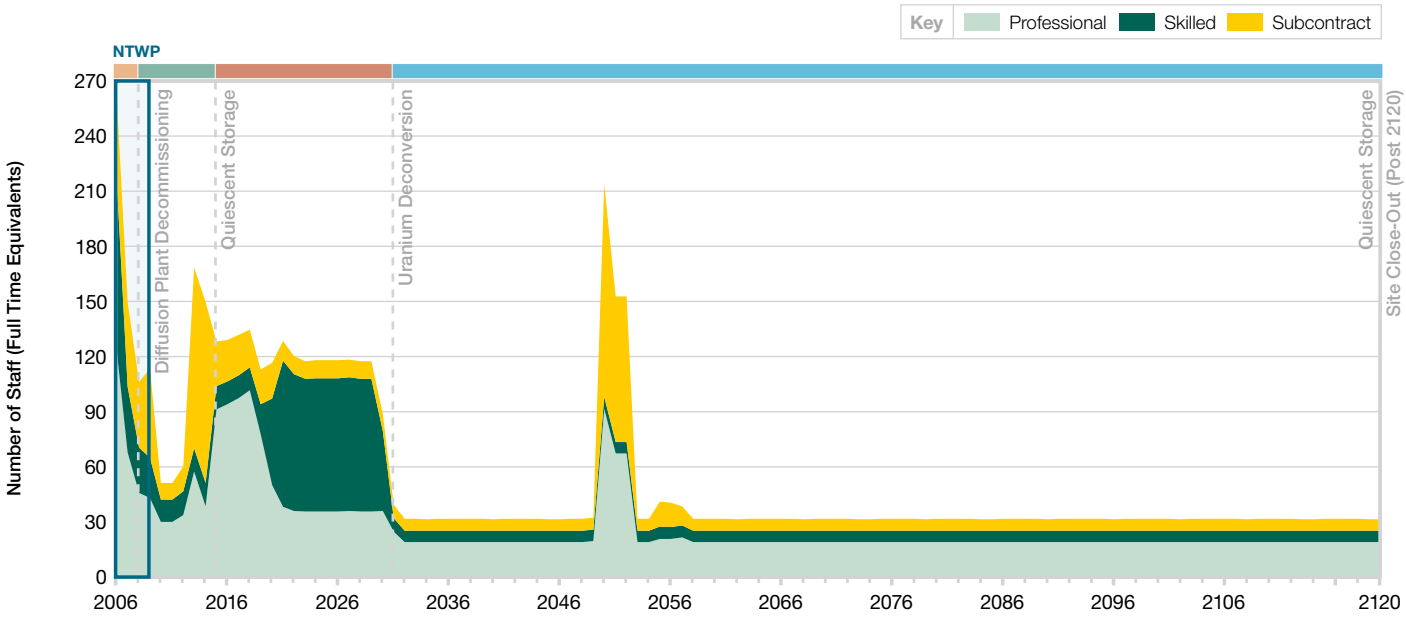
Figure 32-33 – **Reconciliation of costs**

Category/Type	Lifetime Plan 2006/07 (£k)	LCBL 2005/06 (£k)	Variance (£k)	Justification
Transition (32.10)	**11,847**	**15,662**	**-3,815**	
Workforce Restructuring (32.10.01)	**11,847**	15,662	-3,815	Reduction in near term severence allowance.
New Construction Projects (32.11)	**161,035**	**161,035**	**0**	
Waste & Materials Management (32.11.12)	**161,035**	161,035	0	No change to Scope of work.
Decommissioning & Termination (32.13)	**15,588**	**11,898**	**3,690**	
Interim Decommissioning (32.13.32)	**318**	0	318	Transition to Care & Maintenance is a new Scope of Work.
Final Decommissioning (32.13.34)	**14,787**	11,450	3,337	Carry over & re-estimate for charactorisation of waste.
Contaminated Land (32.13.36)	**483**	448	35	Carry over.
Waste & Nuclear Materials Management (32.14)	**148,981**	**134,464**	**14,517**	
SNM Operations (32.14.42)	**126,554**	125,535	1,019	Re-estimate to current industry standard.
LLW Operations (32.14.43)	**22,427**	8,929	13,498	Increase in charactorisation of waste disposed off site.
Site Support (32.15)	**129,643**	**120,636**	**9,007**	
Site Services (32.15.51)	**112,718**	105,481	7,237	Prolonged Security & Welfare charges into 2008/09.
Operations & Project Support (32.15.52)	**16,925**	15,155	1,770	Provision of support services till 2008/09.
Support Services (32.16)	**69,388**	**92,307**	**-22,919**	
Functional Support (32.16.60)	**69,388**	92,307	-22,919	Removal of Corporate Support costs in out years.
Stakeholder Support (32.17)	**16,043**	**16,296**	**-253**	
Regulatory Support (32.17.70)	**16,043**	16,296	-253	Re-estimate based upon improvements to the current engagement process.
Revenue Income (32.20)	**0**	**0**	**0**	
Non-Operational Income (32.20.91)	**0**	0	0	

Staffing Curve

The staffing profile curve, below represents the established resources over the lifetime, and reflect the strategic reduction in resources through the period in line with the decommissioning activities.

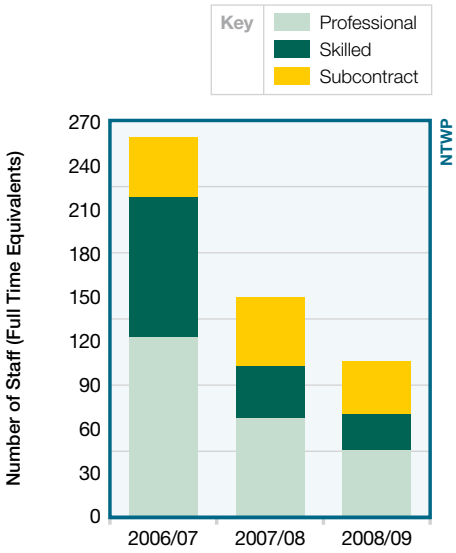
Figure 32-34 – **Staffing profile curve against time and key phases**



LCBL/NTWP Staffing

The staffing curve clearly demonstrates the extended second quiescent phase, required to maintain the uranium storage to 2120.

Figure 32-35 – **NTWP (Years 1 to 3) staffing profile against time**



Metrics & Key Quantity Curves

The Metrics below demonstrates Capenhurst's commitment to deliver. They highlight the progress being made throughout the lifetime, and indicate how the Site Management team will meet targets whilst maintaining a safe and compliant site.

LCBL Key Metrics

Over the Capenhurst lifetime four key metrics stand out and show the progress made in the various phases.

The storage of uranium as an asset is the driver for the site and the graph shows how receipt of uranium continues till 2012. In 2020 the deconversion plant will begin operation and the graph shows the material is converted from hexafluoride to oxide form without the site total quantity changing.

As the waste graph shows, waste disposal is only significant during the Diffusion Plant decommissioning phase and the demolition of the Uranium Deconversion plant. There is no High Level Waste (HLW) or Intermediate Level Waste (ILW) at Capenhurst. Over 60% of waste categorised as Low Level is currently disposed to Clifton Marsh as opposed to the Low Level Waste Repository.

The building footprint at Capenhurst is a good indicator of the level of site activity. After the demolition of the redundant Diffusion Plant building the new store construction in 2050 is the single biggest change. With good care and maintenance there is the opportunity that the life of the current store can be extended negating the need for new buildings.

The number of monitored workers shows the variation in active operations over the lifecycle. The levels of radioactivity are very low at Capenhurst and the ongoing monitoring regime is proportionate to the radiological hazard.

Figure 32-36 – Uranium stored on site (Te)

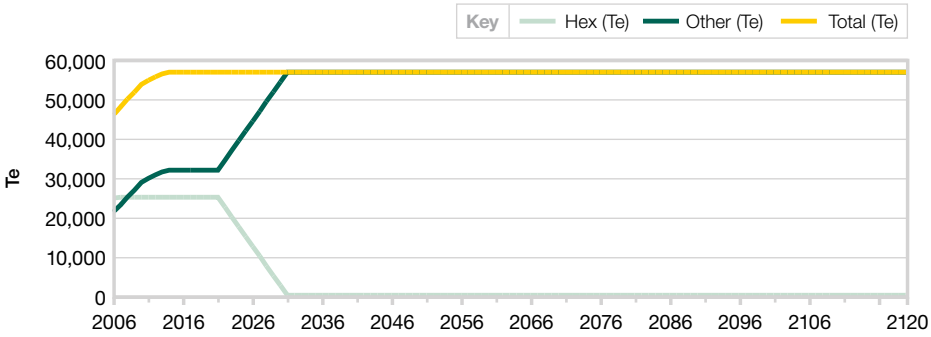


Figure 32-37 – Waste arisings volumes on site during the lifecycle

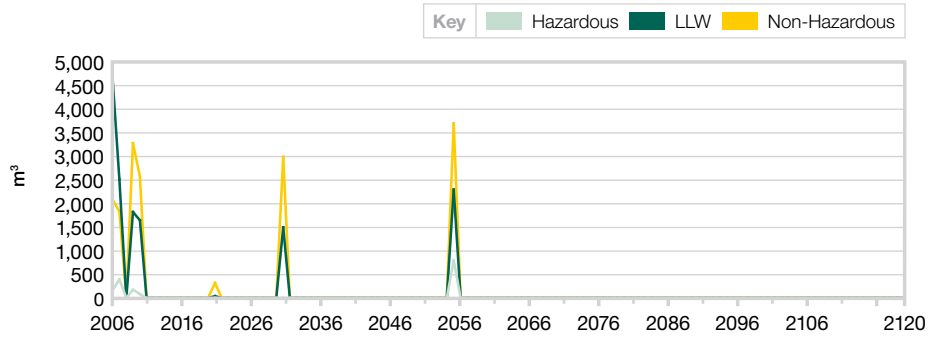
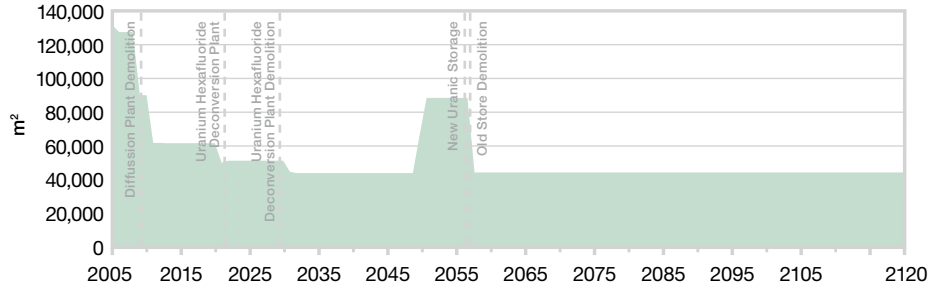


Figure 32-38 – Site building footprint over lifecycle



Conclusion

This Lifetime Plan has been fully developed to meet the new NDA requirements, to underpin current technology and development opportunities. In addition all costs have been reviewed and savings identified using current industry data. This plan provides a robust basis for future challenges to the uranium storage strategy at Capenhurst.

This plan has been produced to represent the current confirmed plans for the Capenhurst Site. Over the months, in conjunction with all key stakeholders, work has been initiated that has the potential to radically alter the strategy for the site. These options have been put together as a set of scenario plans that support the NDA remit to challenge the current costs and deliver value for money for the UK taxpayer.

Unique characteristics of Capenhurst are the shared site arrangements with Urenco and the low radiological hazard. This provides a number of opportunities to deliver cost savings and a programme that is independent of the UK ILW strategy being developed by CoRWM.

The baseline for Capenhurst is driven by the uranium storage strategy as a UK asset until 2120. At a time in the future, the stored uranium may either be developed as an asset or determined as having no future value and treated as a waste. However, until a date is confirmed when the material is to be removed from site it is not possible to confirm the full lifetime cost.

The End State of Capenhurst has been defined and is currently brownfield. The cost to achieve this across the site has been analysed and the strategy is being analysed as part of a BPEO study.

Key to delivery at Capenhurst is the strong workforce with the correct balance of skills to complete the current decommissioning work. Going forward, the transition to a quiescent Uranium Store will only require a subset of these skills. Planned staff reductions are in place and are fully supported through partnership with local unions and the community.

Safely completing the decommissioning work demonstrates that the skills and techniques are appropriate for the purpose. Current delivery to plan and cost provides confidence that future plans are robust and credible.

Disposal of waste from the site is a visible sign of the progress being made. Each ISO container represents 15m^3 of legacy material that has been processed, characterised and packaged to reduce hazards and meet tough environmental standards.

The storage facility is well managed and controlled. It utilises robust industrial technology to deliver good value long term storage. Over the 115 year plan good maintenance will ensure the lifetime costs are kept low and safety is maintained.

Capenhurst is currently developing a specialist plant to wash out and cut up an old design of uranium hexafluoride cylinders. The development of this plant is a forerunner to the techniques used for uranium deconversion. Deconversion will start in 2120 and reduce the site hazard by converting uranium hexafluoride to passively safe uranium oxide.

The environment around Capenhurst is constantly monitored. Jointly with Urenco, a Biodiversity Action Plan is in preparation and will continue to ensure that the operations at Capenhurst have no significant impacts to flora, fauna or the landscape.

Notes

Notes

Nuclear
Decommissioning
Authority

Herdus House,
Westlakes Science & Technology Park,
Moor Row, Cumbria, CA24 3HU, UK

T +44 (0)1925 802001
F +44 (0)1925 802003
www.nda.gov.uk

British Nuclear Group
Intelligent nuclear clean-up

British Nuclear Group is a business group of British Nuclear Fuels plc

Capenhurst, Near Chester,
Cheshire, CH1 6ER, UK

T +44 (0)151 339 4101
F +44 (0)151 347 3661
www.britishnucleargroup.com