

Magnox Limited

Hinkley Point A Site Environmental Management Plan

2021/2022





Executive Summary

In January 2002 Magnox Electric Ltd (now Magnox Ltd) applied for consent to decommission Hinkley Point A Nuclear Power Station under the Nuclear Reactors (Environmental Impact Assessment for Decommissioning) Regulations 1999 (as amended).

Consent was granted by the Health and Safety Executive (HSE) (now the Office For Nuclear Regulation (ONR)) in July 2003 subject to 6 conditions. In compliance with condition 2, this Environmental Management Plan has been prepared to provide information relating to environmental risks and mitigations anticipated and arising during the decommissioning project.

This document is the twenty-first issue of the Hinkley Point A Environmental Management Plan which has been updated and issued annually, in compliance with condition 5 of the consent.

This document provides detail of the mitigation measures available at Hinkley Point A to prevent, reduce, and where possible offset any significant adverse environmental effects of the decommissioning work, and provides an update on how these measures have and will be implemented during the decommissioning activities carried out on site.

Kirandeep Basra-Steele Site Director Hinkley Point A October 2022



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1. Introduction

Hinkley Point A Reactor Site (hereafter Hinkley A) ceased generation in 1999 and was formally shut down in May 2000 after generating electricity since 1965.

The site entered a phase of decommissioning in accordance with the consent issued by the Health and Safety Executive (HSE), now the Office for Nuclear Regulation (ONR) in 2003 under the Nuclear Reactors (Environmental Impact Assessment for Decommissioning) Regulations 1999 (as amended) (EIADR99).

The consent (Appendix A) details six conditions that apply to the decommissioning project, including a requirement for the preparation, implementation and review of an Environmental Management Plan (EMP) that shall describe preferential mitigation measures to prevent, reduce and where possible offset any significant adverse effects on the environment. In addition, the plan shall describe how such measures have been employed during the various phases of the decommissioning project including, where appropriate, the effectiveness of and changes to such mitigations in the light of experience and giving reasons for such changes.

This issue of the EMP is structured in a way to clearly demonstrate how Hinkley A meets the requirements of these consent conditions.

Other supporting information which may be of interest to the public but is not directly required by the consent conditions is also located in the Appendices (e.g., stakeholder engagement).

A detailed decision report describing the content of the conditions attached to the consent and the main reasons and considerations for the decision was prepared in 2003; copies of this document are available from:

Office for Nuclear Regulation Building 4 Redgrave Court Merton Road Bootle Merseyside L20 7HS

Tel: 0151 951 4000

email: EIA. Team@onr.gsi.gov.uk

Or via the internet from:_ http://www.onr.org.uk/hinkley.pdf

Any queries relating to decommissioning activities at Hinkley A or requests for copies of this EMP should be addressed to:

Site Director Hinkley Point A Site Nr Bridgwater Somerset TA5 1YA

2. Scope of the Environmental Management Plan

Geographical Scope

The site is situated adjacent to Bridgwater Bay within the Severn Estuary and is located between a currently generating nuclear site (Hinkley B) to the east and a new build nuclear site (Hinkley C) to the west.

This EMP details the mitigation measures employed to prevent, reduce and, where possible, offset any significant adverse effects on the environment throughout the decommissioning of Hinkley A.

Duration

The decommissioning project at Hinkley A consists of a three phased approach. These three phases are summarised below:

Care & Maintenance Preparations (C&MP)

During this current phase of decommissioning, most of the radioactive and non-radioactive plant and buildings on the site will be dismantled. Intermediate level radioactive waste (ILW) will be retrieved from current storage locations as appropriate, processed and then placed into purpose-built storage. Upon completion of C&MP the site will have been put into a passively safe state where the need for future human intervention to maintain acceptable conditions, prior to final site clearance, is minimised.

Care & Maintenance (C&M)

This is a mainly quiescent phase expected to last for some decades and will require management, maintenance, and monitoring of Hinkley A to ensure that it remains in a passively safe and secure state. The site will continue to be the subject of a Nuclear Site License during this phase.

Final Site Clearance

The final phase of decommissioning is expected to last approximately 10 years and will include the dismantling of the last remaining structures, including the reactor buildings, the clearance of any residual radioactivity to the applicable standards at the time, and the delicensing of the site so that it can be made available for alternative land use.



Fig. 1 Hinkley A (I) and Hinkley B (r) with Bridgwater Bay in the background.

This EMP is structured around these three phases. However, it is expected that the phasing mitigation measures may change in the future in light of experience and developing technologies. For the later phases of work where mitigation measures are still to be identified, developed in more detail, or require changes, these will be described in subsequent issues of the EMP together with reasons for the changes made.

Topics

The Environmental Statement that accompanied the application for consent in 2001 summarised the environmental aspects of the decommissioning project and described potential beneficial and adverse environmental impacts of this project. The mitigation measures described in the Environmental Statement have been extracted and tabulated in Section 4.

These impacts were divided into 9 topic areas which have been used throughout this EMP and are listed below:

- · Air Quality and Dust
- Archaeology and Cultural Heritage
- Ecology
- Landscape and Visual
- Noise and Vibration
- Socio-Economic
- Surface Water Quality and Drainage
- Geology, Hydrogeology and Soils
- Traffic and Transport

3. The Site and Surrounding Area

Site Description

Hinkley A is located on the south west coast of England in the county of Somerset, approximately 13 km North West of the town of Bridgwater. The Nuclear Licensed Site occupies an area of approximately 26 hectares and consists of a number of buildings, hard standings, as well as a road network within a high metal security fence. The remaining area consists of well-tended grassland.



Fig. 2 View of Hinkley A from the Quantock Hills

The two reactor buildings are the dominant features on the site, each 53 metres high. Each contains a reactor of the gas cooled, graphite moderated, Magnox type¹. The reactor cores are each contained in a large steel pressure vessel surrounded by a concrete biological shield. Boilers converted water to steam in order to drive the turbines located inside the turbine hall (demolished in 2019). Cooling of the steam to return it to water was provided by seawater passed through condensing units. The cooling water intake and outfall structures are located offshore and were connected to the turbine hall by means of large underground tunnels, which are now blanked off.

Other buildings and plant on the site include the ponds buildings, national grid substation, workshops, waste storage and processing areas, stores and offices.

Transport Infrastructure

The main vehicular access to Hinkley A, from the M5 motorway to the east, is via the A38 which links with the motorway north and south of Bridgwater at junctions 23 and 24 respectively. At Bridgwater the A38 joins the A39 and the route continues west along the A39 to Cannington. From there the C182 leads north to a private site access road.

1 The term 'Magnox' refers to the first generation of gas-cooled nuclear reactors used for electricity generation. It is derived from the cladding material (magnesium non-oxidising alloy) that surrounds each individual uranium metal fuel element.

Sensitivity of Receiving Environment

Hinkley A is situated adjacent to the foreshore of Bridgwater Bay, a Site of Special Scientific Interest (SSSI) which is also designated a National Nature Reserve (NNR). The wider Severn Estuary is designated a Special Protection Area (SPA), a wetland of international importance under the Ramsar Convention and is a Special Area of Conservation (SAC).

A Nature Reserve in the Steart Peninsula has been created by the Environment Agency and the Wildfowl and Wetlands Trust, approximately 10km from Hinkley A; the reserve fully opened in May 2015 and in 2022 it was declared part of the new Somerset Wetlands – England's largest 'Super National Nature Reserve'.

A County Wildlife Site (CWS) lies to the west and south of Hinkley A within which lies Branland Copse north and south, which are areas of broadleaved semi-natural woodland. The Quantock Hills lie 7 km south extending to the coastline at Quantock's Head and have been designated as an Area of Outstanding Natural Beauty (AONB). The Exmoor and Quantock Oak woods are on the east side of the Quantock Hills and are designated as a Special Area of Conservation (SAC).

Within a 10 km radius of Hinkley A there are two additional SSSIs: Ge-mare Farm Fields which lies 7 km south west of the site and Berrow Dunes which lies near Burnham-on-Sea to the north east of the site.

There is one area of known archaeological interest close to the site boundary at Hinkley A, which is an early Bronze Age burial mound dating from around 1500BC. This site is known as Pixies Mound (Wick Barrow) and is a Scheduled Monument.



Fig. 3 Wick Barrow dating from 1500BC

4. Mitigation Measures

4.1 Identified Impacts and Mitigation measures

In support of the application to decommission under the Nuclear Reactors (Environmental Impact Assessment for Decommissioning) Regulations 1999 (EIADR99) and the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (TCP(EIA) 17), Environmental Statements (ES) were compiled in which potential impacts and key mitigation measures were identified for the three phases of decommissioning.

There have been no significant changes to the mitigation measures that were submitted in the Environmental Statement and reported in the previous issue of the Environmental Management Plan.

The mitigation measures identified in both Environmental Statements are presented in the tables in normal script, the mitigation measures identified in the ES under EIADR99 only are in *italics* and those mitigation measures identified in the ES under the TCP (EIA) 99 only are underlined.

The following tables list the mitigation measures identified for each phase of the decommissioning project separately (Tables 1 - 3).

Table 1: Care & Maintenance Preparations Phase

Mitigation measures already identified (Condition 3a)

Topic: AIR QUALITY and DUST

Dust may be deposited within 100-200m of the site boundary. Apart from Hinkley B and Hinkley C there are no other commercial or residential properties within this distance that could be affected.

Nature of impact	Mitigation Measures Proposed	
Dust emissions during excavation, demolition and construction activities (including handling and storage of soil and material)	 Minimising unnecessary handling of materials and drop heights Carrying out the activities during a period of poor dispersion conditions (i.e. very low wind speeds) and minimizing activities in dry/windy weather conditions. Enclosing containers during loading and transport Using water sprays to maintain damp surfaces during dry weather Seeding surfaces of completed mounds Construction of wind fences around dust sources 	
Dust emissions during movement of vehicles	 Sheeting of lorries containing materials and spoil export Provision of wheel washing for HGVs on leaving the site where relevant 	

Topic: ARCHAELOGY and CULTURAL HERITAGE

There is no evidence that there are any features of archeological interest within the Hinkley A Licensed Site boundary and no associated works are proposed outside of this boundary.

Nature of impact	Mitigation Measures Proposed
Impact on cultural heritage (decommissioning of buildings, structures and the technology housed within)	A Royal Commission on the Historic Monuments of England (RCHME) level 1 survey of the affected site buildings to be undertaken prior to decommissioning. The RCHME was merged with English Heritage in 1999, with Historic England since formed in 2017 now providing this role.

Mitigation measures already identified (Condition 3a) - continued

Topic: ECOLOGY

From time to time there will be noisy operations, dust generation, incidental road wildlife mortality and the potential for accidental spillage or pollution. Although general levels of background noise are unlikely to change due to the continued operation of Hinkley B and the construction of Hinkley C, the greatest impact is likely to be noise disturbance of birds in neighboring areas, particularly Brandland Copse and areas of scrub to the south of the site.

Nature of impact	Mitigation Measures Proposed
Loss of habitat (grassland) as a result of off- site storage of materials and equipment. Loss of foraging habitat for badgers, bats, birds and amphibians	 Grassland will be reinstated after removal of spoil mounds Landscape planting will provide some replacement habitat (See Landscape and Visual) Retained areas of valuable habitat will be protected where practicable
Disturbance to nesting birds as a result of clearance of vegetation (or demolition of buildings)	All clearance of vegetation and demolition of buildings, likely to be of value to nesting birds, to be undertaken outside the bird breeding season
Disturbance to birds from traffic and site noise	If appropriate, fencing and other barriers will be erected to protect particular sensitive areas and close boarded fencing around the construction site will be erected to mitigate noise and human disturbance Noisy operations may need be programmed sensitively
Increased road mortality for badgers, nesting birds and great crested newts	Implement onsite speed limits
Dust deposition on coastal grassland, species rich grassland and scrub along Branland Copse	See mitigation measures proposed under 'Air Quality and Dust' topic in this table
Pollution/sedimentation of freshwater habitats for water voles and otters	See mitigation measures proposed under 'Surface Waters' topic in this table
Habitat creation	At final site clearance, a new pond will be created to provide additional breeding habitat for amphibians – see Table 3.

Mitigation measures already identified (Condition 3a) - continued

Topic: GEOLOGY, HYDROLOGY and SOILS

Subject to appropriate control, there will be no significant impacts. Monitoring may be necessary to ensure that mitigation measures are effective. The removal of potential sources of pollution will yield slight benefits during this and subsequent phases.

Nature of impact	Mitigation Measures Proposed
Changes to groundwater quality through disturbance of contaminated soils from excavation of subsurface structures and/or surfaces	 A programme of sampling and testing of soils during excavation will be agreed with the EA Contract documents will seek to ensure that groundwater ingress to excavation and demolition areas will be controlled to minimise the volume of water subsequently requiring management Management of contaminated soils to avoid leaching into previously clean soils and groundwater The containment and off-site disposal of contaminated soils Groundwater infiltration and drainage from areas used for
	temporary storage of demolition waste materials or soils would be controlled to minimise the risk of leaching of contaminants and generation of contaminated or elevated pH water. Detailed proposals will be made for the collection and disposal of any potentially radiologically contaminated groundwater
Changes to groundwater quality through spills and leaks	 Utilisation of appropriate measures to prevent pollution A spill response plan will be produced to deal with significant spillages to reduce the potential for environmental impact Appropriate siting, bunding and drainage of fuel and oil tanks and concrete mixing facilities Installation of adequately sized and designed oil separation units Provision of spill control equipment
Changes to groundwater level	Inert backfill will be placed and compacted within underground structures and artificial drainage points created to prevent build-up of groundwater levels

Mitigation measures already identified (Condition 3a) - continued

Topic: LANDSCAPE and VISUAL

Visual impacts will occur as a result of the use of cranes, construction and demolition of buildings and foundations, site clearance activities, vehicle movement, and security lighting. Cranes will be visible from locations to the south of the Quantock Hills Area of Outstanding Natural Beauty. The main adverse visual impacts will be from local viewpoints such as Stolford, Wick, Shurton, Burton and Knighton.

Nature of impact	Mitigation Measures Proposed
Visual impact from the site wide construction and demolition activities.	Planting scheme will be implemented where reasonably practicable to do so including:
	Provision of a long-term visual softening in long views from the access road and mitigate the views from the south and the south east by creating a wide hedgerow with trees.
	Visual extension of Brandland Copse North by creating a 4m hedgerow along the north part of the western boundary.
	Mitigation of the loss of grassland habitat resulting from the construction activities (i.e. soil stockpile area). This adverse impact will be mitigated by restoring the grassland habitat. The area will be seeded with low-density indigenous grass mix, sown directly onto soil. Fertilisers would not be used.
	Design, siting of buildings and choice of colour of cladding materials have been developed with the aim of reducing the visual impact.

Topic: NOISE and VIBRATION

C&MP impacts will depend on the decommissioning methods adopted and generally on their proximity to people and buildings. Impacts at all properties will be slight to negligible. The greatest impacts will be confined to the site and Hinkley B and Hinkley C and nearby wildlife. Any such disturbance is likely to relate to individual noisy events or to occur for relatively short periods of time.

Nature of impact	Mitigation Measures Proposed
Noise related to transport	Maximum axle weights for transportation of plant materials and waste could be imposed by contract

Mitigation measures already identified (Condition 3a) - continued

Topic: NOISE and VIBRATION - continued	
Nature of impact	Mitigation Measures Proposed
Noise from site activities (demolition and construction works)	 All construction activities to be undertaken in accordance with good practice as described by British Standard 5228-1:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites Main noise generating activities restricted to daytime hours (between 08:00 and 17:00), work outside these hours will be agreed with local authority Mitigation by distance and screening will be maximized where possible Use of concrete crushers rather than pneumatic hammers Use of equipment fitted with effective silencers/insulation Minimising unnecessary revving of engines, turning off machines when not required and routine maintenance of equipment Appointment of site supervisors to whom complaints/queries about construction activity can be directed – any complaints to be investigated and action taken where appropriate If piling is considered to be necessary, jacked or bored piling techniques to be used in preference to driven piling

Topic: SOCIO-ECONOMIC

There will be a progressive reduction in Magnox employee levels during the C&MP phase. This reduction in employees will be countered by the requirement for additional contract personnel, a resource that will flex to meet the requirements of the decommissioning programme.

Nature of impact	Mitigation Measures Proposed
Reduction in number of site personnel	 Phasing of employment reductions Maximising opportunities for employment continuity or redeployment within the Company for Magnox Ltd. personnel Where possible, maximise the take-up of a voluntary severance scheme
Change in employment level in local economy; change in level of local expenditure	 Use of locally based contractors Maximise the opportunities for locally-based businesses to secure involvement as contractors, sub-contractors and suppliers

Mitigation measures already identified (Condition 3a) - continued

Topic: TRAFFIC and TRANSPORT

When entering the C&MP, the number of cars on site will progressively reduce in line with employment levels. Lorry movements will broadly remain about the same as when the station was operational.

Nature of impact	Mitigation Measures Proposed
Mud on public highways	It is expected that normal good site practice with regards to wheel washing etc., if appropriate, will suffice.

Topic: SURFACE WATER QUALITY and DRAINAGE

Measures will be put in place to control surface water drainage. Fuels and chemicals on site will be used in accordance with current site practices to minimize the risk of spillages or leakages. The impacts of the C&MP phase on the surface water flow regime, surface water quality and soil erosion and sediment loading are negligible. Indeed, the removal of potential sources of pollution will yield slight benefits during the works phase and all subsequent phases.

Nature of impact	Mitigation Measures Proposed
Surface Waters Changes to surface water quality through uncontrolled discharges	Contract documents will seek to ensure that surface water ingress to excavation and demolition areas will be controlled to minimize the volume of water subsequently requiring treatment
arising from excavations into contaminated soils	Any contaminated soil will be isolated and appropriately disposed
	Drainage from excavation areas will be collected and managed
Changes to surface water quality through uncontrolled discharges of	Minimise stockpiling of loose materials
sediments and/or turbid water into surface drains and surface water	Seeding of the soil stockpile to reduce wash-off of suspended solids
courses	Erosion protection using geotextile materials considered when stockpiling materials over long periods
	Minimising movement of soil during wet weather
	Cleaning of roadways, including use or recirculating wheel washers and road sweepers
	Silt traps, balancing ponds and appropriately sized grills on drains
Changes to surface water quality through uncontrolled discharges of contaminated water through spills and	Appropriate siting, bunding and drainage of fuel/oil tanks and concrete mixing facilities
leaks of non-radioactive material (e.g. concrete, cement, fuels, oils or other	Handling protocols for washing out of concrete mixing plant and refueling
chemicals)	Installation of adequately sized and designed oil separation units
	A Spill Response Plan will be produced to deal with spillage and reduce the potential for oils to enter surface waters
	Provision of spill equipment to control spillages

Table 2 Care & Maintenance Phase

Mitigation measures already identified (Condition 3a)

Topic: ECOLOGY

The decrease in noise levels will be a slight benefit, especially after Hinkley B has also ceased generation, although general levels of background noise are unlikely to change due to the continued construction and subsequent operation of Hinkley C. Habitat creation, as part of the restoration plan, could represent a considerable net benefit for nature conservation locally, in particular the potential to increase coastal grassland within the site boundary and outside the security fence. The site will be undisturbed and will become more attractive for wildlife, especially for birds.

Nature of impact	Mitigation Measures Proposed
Disturbance to birds from traffic noise	Removal operations will be programmed sensitively
Increased road mortality for great crested newts	 The presence or otherwise of great crested newts should be monitored as part of site management during the C&M phase A detailed mitigation plan will be developed

Topic: GEOLOGY, HYDROLOGY and SOILS

No activities will take place that will affect geology, hydrology and soils.

Nature of impact	Mitigation Measures Proposed
Changes to groundwater quality through disturbance of contaminated soils from excavation of subsurface structures and/or services	 A programme of sampling and testing of soils during excavation will be agreed with the EA and the ONR Management of contaminated soils to avoid leaching into previously clean soils and groundwater

Topic: LANDSCAPE and VISUAL

The Site will remain visible. The architectural treatment and lack of lighting in particular will give rise to moderate visual benefits particularly at a local level, although the site will still be viewed in the wider context of Hinkley B and Hinkley C. New tree planting will enclose some views in the long term.

Nature of impact	Mitigation Measures Proposed
Visual impact from site activities (demolition and construction works)	The planting management regime (e.g. replacing of trees and shrubs) would be agreed with the local planning authority, as relevant and appropriate

Table 2 Continued: Care & Maintenance Phase

Mitigation measures already identified (Condition 3a) - continued

Topic: SURFACE WATER QUALITY and DRAINAGE

No activities will take place during the C&M phase that will affect surface water and drainage.

Nature of impact	Mitigation Measures Proposed
Avoidance of localized flooding	Drainage facilities in place during and after C&M period to avoid localised flooding. Small land drains may need to be installed
	 Improvements to flood defences made as necessary to ensure continued protection of site until final clearance

Table 3: Final Site Clearance Phase

Mitigation measures already identified (Condition 3a)

Topic: ALL TOPIC AREAS

This will take place ~100 years after station shut down. The works themselves are predicted to take ~ 10years and the impacts will be similar to those that occurred during the initial C&MP phase. Once the site is cleared, the removal of potential sources of contamination and lack of activity represents benefits. The most significant benefit will be in terms of views of the site, following the demolition of the reactor buildings.

Nature of impact	Mitigation Measures Proposed
It is predicted that the impact may be as those identified in Table 1	Mitigation measures proposed for this section are identical to those specified in Table 1

4.2 Future mitigation measures (Condition 3b and 3c)

Work activities beyond final site clearance phase have not yet been identified. As a result, a list of mitigation measures required during any future phases cannot yet be identified.

4.3 Activities where mitigation measures may be required but cannot yet be identified and assessed (Condition 3c).

Currently no such work activities have been identified.

5. Implementation of the Environmental Management Plan

It is a requirement of the conditions attached to the consent (Appendix A), to implement the mitigation measures and describe their effectiveness. This chapter identifies the measures (listed in Table 1) which have been implemented; explaining how the site measures their effectiveness in reducing environmental impacts and describes their use in some of the more recent and relevant projects.

Process for Implementation of Mitigation Measures

Hinkley A's management system arrangements ensure that decommissioning activities are carried out in accordance with the mitigation measures set out in this plan. All decommissioning projects and modifications to plant are assessed during the proposal stage in accordance with robust company management control procedures. A template of questions (forming part of the Decommissioning Project Approval Form (DPAF)) is used to determine whether further environmental assessment and mitigation is required (Appendix B).

In addition, there are a number of other tools to ensure that all environmental impacts are minimised. The site has an Integrated Management System which covers the requirements of ISO 9001 (Quality Assurance Management System), ISO 14001 (Environmental Management System), ISO 45001 (Occupational Health and Safety Management System) and ISO 55001 (Asset Management System Standard).

Hinkley A also undertakes Best Available Techniques (BAT) optioneering studies for those projects where it is deemed that there is potential for significant radioactive and non-radioactive discharges and disposals from the site, e.g. site waste management, decommissioning or restoration projects and where it is required to demonstrate that these impacts are minimised through evaluation by a clear, systematic and transparent process.



Fig. 4 Environmental Monitoring - seaweed sampling at HPA

Processes for Determining Effectiveness of Mitigation Measures

The site continually monitors the effectiveness of mitigation measures over time, and where necessary reviews these to ensure the success of reducing significant environmental impacts. A key part of this process is the close interaction between the Project and the Environment Teams, ensuring that mitigation measures are considered, applied and, where relevant, reviewed throughout the lifespan of the project. The effectiveness of the mitigations is monitored in a variety of ways as described below.

1) Environmental Performance Monitoring

Environmental performance monitoring (e.g. dust, noise, groundwater monitoring) is performed using specialist equipment. This allows assessment of environmental impacts post-mitigation in addition to being of use for determining baseline conditions. The main use of post-mitigation environmental monitoring will be for larger projects, such as the demolition of buildings or movement of large quantities of spoil. The requirement for this method of measuring effectiveness is determined on an individual project basis as appropriate.

2) Visual Evidence

Site photographs taken before the start of the project provide a good visual indication of the surrounding area and help to identify potential environmental receptors in the vicinity (e.g. surface drains) and hence highlight mitigation measures that need to be implemented. Visual inspections and photographs can also provide an indication on effectiveness of mitigation measures.

3) Review of Regulatory Action, Complaints and Internal Event Reporting

Regulatory actions, complaints and internal events, including near misses, are reported and investigated. Such investigations may provide recommendations for improvements where mitigation measures have not been effective or where further mitigations are required. Additionally, the site operates a robust system of internal event reporting called Operations Experience Feedback (OEF). With OEF, staff and contractors are encouraged to report conditions which are unsafe or pose a threat to the environment. These are then rectified, and the root causes investigated where necessary.

Examples of Completed Work Requiring Mitigation Measures







b)

c)







Fig. 5 Before and after examples of a) repurposing of an existing structure to provide a protected environment for charging electric vehicles; b) modify road layout and composition to aid operations of waste carrying HGV's and c) construction of a waste transit store.

During the previous 12 months compelling Government advice on managing the COVID-19 pandemic has understandably evolved in line with the reducing risks presented by the virus, and which concluded that Magnox should initiate a controlled restoration of work activities across the business. Hinkley A subsequently achieved a safe and compliant 'restart' of work, whilst continuing to maintain workplace controls that reduce the risk of Covid-19 and include adequate ventilation, sufficient cleaning, good hygiene and being respectful and considerate of the needs of others should they wish to maintain distance and wear a face covering.

Following the restart, the majority of decommissioning and construction work being undertaken has largely comprised of projects from inside existing buildings which have prioritised hazard reduction via waste retrievals, storage and disposal, building deplanting and demolition, as well as maintenance of essential services and welfare facilities.

One landmark reached this year was the completion of the asbestos remediation of R1A boiler house, marking the culmination of a significant amount of work by the plant and structures project and the Licenced Asbestos Removal Contractor, Altrad. The scope of the project was to remediate the boiler house, and associated areas, of the residual asbestos hazard so that asbestos controls are no longer required to make general access.

This has involved hundreds of thousands of hours of effort to date and painstaking cleaning of every surface, to achieve the clearances required from the independent asbestos analyst/surveyor.

The scope of the site work activities, alongside the consequences of the Covid-19 pandemic, has resulted in a relatively small number of aspects with the potential to impact the environment requiring mitigation. Therefore, many of the measures described in the previous section have not been relevant or therefore required to be applied to these particular work activities.

However, all necessary mitigation measures which have been employed on site, during both project and routine works, were consistent with the assessment carried out for compliance with the decommissioning consent and other relevant aspects of compliance with the EIADR99 regulations, non-radiological permits/consents, other relevant legislation and environmental issues. Permission to commence these works was only provided through the Decommissioning Proposal Approval Form (DPAF) process (as shown in Appendix B) once all necessary independent Suitably Qualified and Experienced Persons (SQEP) were satisfied that these and any other environmental issues had been addressed.

Included here are examples of work completed during the period and requiring mitigation measures designed to prevent, reduce and where possible offset any significant adverse environmental impacts of each decommissioning activity, following the assessment of potential impacts, identifying the source/s, pathway/s and receptor/s and the potential of impacts to the relevant key topic areas previously identified.

Air Quality and Dust

All applicable work activities are subject to dust suppression to reduce the risk of dust emissions to the environment. Work would be halted whenever wind speeds increased to the point that the dust suppressor would not be able to manage dust migration. Where required, dust monitoring stations are set up in multiple locations for monitoring and recording purposes. Lorries carrying materials likely to cause dust migration are fitted with load screens.



Fig. 6 Dust Suppression in use.

Ecology

Due to the ecological importance of the area surrounding the site, Specialist Environmental Consultants have been employed to carry out habitat surveys and targeted protected species surveys of areas prior to the commencement of construction or demolition projects. These assessments concluded that there would be no likely significant effect on any potential impacts of the proposed works.

An ongoing ecological impact identified whilst carrying out routine safety related routines during decommissioning is the potential to disturb over wintering birds and the possibility of birds nesting on building roofs. An array of mitigation measures are employed across the site to deter birds from nesting and works which may have the potential to cause a disturbance to the birds are programmed to avoid periods of over wintering or breeding seasons. These mitigation measures are carried out in consultation with, and permitted by, Natural England which ensures that any controls are sensitively employed to protect certain species of wild birds, whilst ensuring that the activities specified by the sites mandatory permitted obligations continue to be fulfilled.

Habitat loss, which is used for nesting or foraging by bird and insect species, caused by demolition of structures or clearance of vegetation has been recognised and compensated by the rewilding of suitable areas around the site which have been allowed to return once again to their natural uncultivated state. Rewilding supports our focus on ecology by improving biodiversity and has been achieved with less mowing of available grassland and minimal use of pesticides and herbicides and supplemented by the provision of nest boxes and bug hotels (providing insects with a safe space to shelter, lay their eggs, raise their young, and seek refuge from predators).

Additionally, the site has constructed a sustainability garden which will further increase biodiversity on site whilst providing an area for the benefit to the physical and mental wellbeing of the workforce. This garden includes a 'wild area', left untouched to allow wildflowers crucial for pollinators to grow; composting the garden waste from the garden will utilise native decomposer organisms such as fungi and soil bacteria; and the planting a variety of plants and shrubs will allow native insects and birds to benefit from the food and cover.

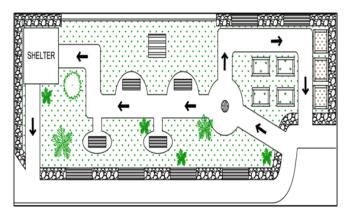


Fig 7. Layout of the Hinkley A Sustainable Garden



Fig 8. Hinkley A Sustainable Garden, officially opened by the CEO of Magnox Ltd alongside the Site Director and the Site Apprentices who manage this project as part of their training programme.

Geology, Hydrogeology and Soils

Soil sampling and analysis is undertaken prior to any excavation. This substantiates previous borehole sampling which has been carried out to determine the extent of legacy ground contamination associated with Areas of Potential Concern (APC).

The potential for spills or leaks of materials leading to changes to soil and groundwater quality are mitigated by the implementation of management procedures which provide details for the control use and storage of oils and other liquids. Spill kits are used to contain spillages and, although seen as a last line of defense for preventing pollution to ground or surface water, are made available in addition to other spill prevention measures. Note also that administrative controls are employed to assess the significance of any spills and releases in order to determine appropriate level of reporting to the regulator

Part of the company procedure for identifying and implementing measures to prevent potentially contaminated soils leaching into ground or surface water is shown in Appendix D, and evaluation of surface water is routinely carried out to assess and monitor the quality of its discharge into the environment.

Landscape and Visual

Projects with the potential to disturb the landscape or visual appearance of the site and surrounding area will be discussed in consultation with the local Town & Country Planning authority. A project such as the construction of a waste transit store (see figure 5 c) above) is an example of this and where a Habitat Regulations Assessment, in support of the planning application, will be undertaken to assess these potential impacts.

Noise and Vibration

All construction activities on site are subject to management controls which require implementation of relevant good practice standards and procedures. These include the use of modern noise-suppressed plant which is regularly maintained to minimise the noise and vibration output, and which when not in use were turned off to reduce further noise, vibration and fuel consumption. All noise generating activities are normally restricted to between the hours of 08:00 and 17:00.

As required, monitoring stations are set up in multiple locations to scrutinise work activities which are likely to cause noise, and which are regularly assessed to ensure that limits were not breached.

Socio-Economic

The current phasing strategy will result in a progressive reduction in employment levels. The site aims to mitigate the impacts of this reduction in site personnel through redeployment within the company. However, due to the varied number projects of differing scales currently being undertaken or planned at Hinkley A, there will be fluctuations in the total workforce with the requirement for additional contract personnel required at times of high demand.

All works have been completed by a largely local workforce, with the main ground works and mechanical and electrical subcontractors being based relatively close to the site – some of which have used their knowledge and experience acquired at Hinkley A to take up opportunities on the adjacent Nuclear Licenced Sites.

Hinkley A recognises its responsibility as a sustainable organisation that needs to support its local communities and continue to invest in its workforce. Recently, Hinkley A has been working closely with the local college to provide information and encouragement to students who may be considering a career in the nuclear industry. As a result of this, the site has recruited and trained 11 apprentices (see Fig. 8) over the past 2 years; all of which on schedule to pass out with top grades and all have been offered full-time employment at Hinkley A. A second batch of 8 further apprentices have now been chosen to continue this scheme and who have been chosen to reflect the communities that we are part of now and in the future.

Additionally, by engaging with these young people the site has given a voice to the next generation, so that their views are reflected, and they can contribute to refining nuclear legacies into opportunities.

The Magnox Socio-Economic Scheme has invested ~£196K in meeting key community needs during the past year. Whilst financially assisting the needs of local sports clubs and parish councils, the vast majority of the total

fund allocated during the past 12 months has been to support a 4-year plan to develop future talent by connecting employers with educational providers and encouraging young people to acquire these employability skills. The aim is to help businesses by ensuring that the skills required by local employers are understood by the future workforce, particularly young people from disadvantaged backgrounds, who can now be informed of these local training and employment opportunities, and with support provided to access them.

Surface Waters

Evaluation of surface water is routinely carried out to assess and monitor the quality of its discharge into the environment.

No changes to water quality as a result of current C&M preparations has been identified following routine sampling and assessment of surface water.

Road drains are protected where there is a potential for mud and debris to be washed down the drains and site management procedures ensure oil and chemical storage areas are well managed; and with routine inspection and maintenance of tanks and oil interceptors.

During the reporting period approx ~3Km of the sites underground drainage systems is being seviced and maintained to provided assurance towards the protection of the environment.

Traffic and Transport

All decommissioning operations involving transport will be managed so as to minimise the environmental effects of these operations, as far as is reasonably practicable. Fundamentally, the principles for achieving this are defined within the site's workplace transport management assessment & plan that assesses the environmental risk and puts in place sufficient control measures to prevent an incident from occurring.

Works carried out during this period have been completed by a largely local workforce and, where it was reasonably practicable to do so, mini buses are used to bring these operatives to site, thus minimising transport impacts. Concrete has been purchased and transported from the local batching plant located close to the site, and a road sweeping is regularly used on site to prevent the transfer of mud from the site to the public roads.

Where possible, the Factory Acceptance Testing phase for several projects has been completed by using remote observations via video streaming to minimise travel. The site now uses a delivery hub. This has achieved a variety of benefits including the reduction in the number of vehicles accessing the site (from an average of 34 to <5 per week), reducing vehicle emissions and reducing congestion on the road network.

Local traffic concerns are monitored and will be raised at the scheduled site stakeholder group meetings. Hinkley A management team has taken action to remind Hinkley A staff and contractors of the expectation that, where practical they should use the bypass which has been constructed to divert traffic away from the village of Cannington.

In addition, a reminder that adherence to speed limits is both an expectation from a stakeholder management perspective and a legal obligation has been issued by the Hinkley A Transport Management Committee, who are continually looking to provide enhanced road safety controls and optimise vehicle movements both in and around its site.

6. Changes to the Environmental Management Plan

There are no significant changes to the mitigation measures that were submitted in the Environmental Statement and reported in previous issues of the HPA Environmental Management Plan. HPA will notify the ONR of any significant change to a mitigation measure no less than 30 days before the change is made, or within such shorter time as the ONR may agree.

7. Distribution of the Environmental Management Plan

Any queries relating to the decommissioning activities at Hinkley A or requests for copies of this EMP should be addressed to:

The Site Director Hinkley Point A Site Nr Bridgwater Somerset TA5 1YA

In addition to the submission of this EMP to the ONR, Magnox Ltd will provide copies to the:

• Hinkley Point A Site Stakeholder Group

Copies of this EMP may be viewed at the following locations:

- Burnham and Highbridge Council
- Nether Stowey Library

Or via the internet at:

www.gov.uk/guidance/magnox-publication-scheme

8. Definitions

AONB	Area of Outstanding Natural Beauty	ISO 14001	Accreditation system for Environmental
APC	Area of Potential Concern		Management Systems
BAT	Best Available Technique	ISO 45001	Accreditation system for Occupational Health and Safety Management Systems
DPAF	Decommissioning Project Approval Form	ISO 55001	Asset Management System Standard
EA	Environment Agency	NDA	Nuclear Decommissioning Authority
	Nuclear Reactors (Environmental Impact Assessment for Decommissioning)	NNR	National Nature Reserve
	Regulations 1999	ONR	Office for Nuclear Regulation
EMP	Environmental Management Plan	SAC	Special Area of Conservation
HSE	Health and Safety Executive	SLA	Special Landscape Areas
ILW	Intermediate Level Waste	SPA	Special Protection Area
ISF	Interim Storage Facility	SSG	Site Stakeholder Group
ISO 9001	Accreditation system for Quality Assurance	SSSI	Site of Special Scientific Interest

Appendix A

Consent Conditions

NUCLEAR REACTORS (ENVIRONMENTAL IMPACT ASSESSMENT FOR DECOMMISSIONING) REGULATIONS 1999

CONDITIONS

Attached under regulation 8(4) to Decommissioning Project Consent No. 1 granted under regulation 4(b)

HINKLEY POINT A POWER STATION

Condition 1

The project¹ shall commence before the expiration of 5 years from the date of this Consent.

Condition 2

- (1) The licensee is required to prepare and implement an environmental management plan to cover mitigation measures to prevent, reduce and where possible offset any significant adverse effects on the environment.
- (2) The project shall not be carried out except in accordance with the environmental management plan.

Condition 3

Within 90 days of the date of this Consent, with reference to the Environmental Statement provided under regulation 5(1) and further information provided under regulation 10(9), the environmental management plan shall:

- a. list the mitigation measures that are already identified;
- b. list the options to implement work activities where mitigation measures may be required but where selection of an option will only be possible in the future;
- c. list the work activities where mitigation measures may be required but where assessments to identify mitigation measures will only be possible in the future.

Condition 4

Subsequent to condition 3, the environmental management plan shall:

- a. with reference to condition 3b, identify the mitigation measures for options that have been selected, giving reasons for their selection;
- b. with reference to condition 3c, identify the mitigation measures from assessments carried out, giving reasons for their selection;
- c. describe the effectiveness of the mitigation measures over time;
- d. describe significant changes to the mitigation measures in light of experience, giving reasons for such changes.

¹ Project as defined in regulation 2

Condition 5

The licensee is required to:

- a. provide the environmental management plan to the Health and Safety Executive within 90 days of the date of this Consent and every year thereafter, or within such longer time as the Executive may agree;
- b. make the environmental management plan available to the public within 30 days of the plan being sent to the Health and Safety Executive, or within such longer time as the Executive may agree; the plan may replace earlier versions.

Condition 6

The licensee is required to provide notice to the Health and Safety Executive of any significant changes to a mitigation measure to prevent, reduce and where possible offset any major adverse effects on the environment no less than 30 days before the change is made, or within such shorter time as the Executive may agree.

Dated: July 2003

For and behalf of the
Health and Safety Executive
Signed
M W Weightman
A person authorized to act in that behalf

Appendix B

Minimising Environmental Impacts — Decommissioning Proposal Approval Form

	PART 5 – ENVIRONMENTAL SAFETY ASSESSMENT						
	and 5.2 are to be categor						
5.2	EIADR 99, ENVIRONMENTAL IMPACT AND OTHER REGULATORY COMPLIANCE The following checklist must be completed by an Environment SQEP (with land quality / planning consultation as required). The assessment is for compliance with the EIADR 99 Regulations, Planning requirements, non-rad. Permits / consents, other relevant legislation and environmental issues including management of land quality.						
	PARAMETER	CONSIDER POTENT		nene or iana quanty.		YES	NO
5.2.1	Decommissioning Baseline	Does this proposed n Project baseline as do Baseline document (i determination)?	nodification represo escribed in the EIAI in particular, is it su	ent a change from the E DR 99 Environmental Im fficient to trigger Regul in accordance with S-15	pact Assessment ation 13		
5.2.2	Planning	modification or demo Does the proposal in stockpiling) in any fo	ermissions have been agreed, or identify how this will be				
5.2.3	Non-radioactive Discharges & Waste	existing Environment regulatory requireme	osal, if inadequately conceived or executed, lead to a breach of an mental Permit / consent, or other environmental licence / irement (e.g. controlled activities regs, pollution control permit, ment license, PCB registration, marine consent, waste				
5.2.4	Non-radioactive Discharges & Waste	_	it or registered was	ting Environmental / PPC Permit, Licence or Consent or new tor registered waste management licence or exemption osal?			
5.2.5	Land Quality	to affect the sub-surf	d work involve 'breaking ground' or otherwise have the potential surface or controlled waters? If 'YES', complete form F-158 in S-154, and ensure that any required mitigation measures are OPAF.				
5.2.6	Site End State		olve permanent deposition of non-radioactive waste or . to backfill subsurface voids)?				
5.2.7	Other Environmental Impacts	unacceptable enviror	proposal, if inadequately conceived or executed, lead to an ole environmental impact? (Consider relevant legislation and formal If so, appropriate controls / mitigation must be specified.				
5.2.8	If all answers are 'NO' then the proposal is Category E3. If 'YES' is answered to any questions above, then assess the environmental impacts and provide further information below.						
5.2.10	CONTROL MEASU	RES AND COMMEN easures that will be use nents, BAT / BPM studie mental Category wo	ITS ed to ensure that e es where appropria	nvironmental risks are a	adequately managed. End State Technical L	Refer to	ı
	E1		E2	7	E3 🗍		
	Name: Environme	nt SQEP	Signature:		Date:		

Appendix B - Continued

Minimising Environmental Impacts — Decommissioning Proposal Approval Form

PART 5 –	PART 5 – ENVIRONMENTAL SAFETY ASSESSMENT				
Both 5.1 and	Both 5.1 and 5.2 are to be categorised individually before an overall environmental category is assigned below.				
5.3	OVERALL ENVIRONMENTAL ASSESSMENT				
	To be completed by the NRE, with signatures from Environmental SQEP/PRSLA and EHSS&Q Manager as appropriate.				
5.3.1	ENVIRONMENTAL JUSTIFICATION	N / MITIGATION			
	Refer to control measures under 5.1 and 5.2, make a summary statement. Also consider if there is any conflict between mitigations that need to be addressed or if additional mitigations are required overall.				
5.3.2	OVERALL ENVIRONMENTAL CATEGORY				
		mined by reviewing the adequacy of t			
		d out and consider whether any other			
	definitions given in MCP-099 Appendix 1 are relevant. Select the relevant box below.				
		n measures required have been identi			
		ny further Environmental Justification	s (e.g. BAT / BPM) should be		
	attached.				
	RECOMMENDED ENVIRONMENT	AL CATEGORY:			
	Use the criteria identified in MCP-099, Appen	dix 1.			
	E1	E2	E3		
	Name:	Signature:	Date:		
	Environment SQEP/PRSLA				
	For category E1 modifications, two	additional signatures are required:			
	1) Confirm awareness of the modification				
	Name:	Signature:	Date:		
	EHSS&Q Manager				
		posal has been reviewed by Head of P	rofession – Environment and that		
	comments / recommendations have been addressed.				
	Name:	Signature:	Date:		
	NRE				

Appendix C

Stakeholder Engagement

Whilst decommissioning represents a new phase in the lifecycle of the site, Magnox Ltd remains committed to engaging with stakeholders at all phases in the process.

The Site Stakeholder Group (SSG) is an open public meeting. It meets three times a year and is chaired by an independent chairman. Both the Hinkley A and the neighboring Hinkley Point B Power Station are represented and an update is provided on site works. The chair regularly meets with the Hinkley A Site Director and is also in regular contact with the Nuclear Decommissioning Authority (NDA).

In addition, regular meetings with the site regulators (EA and ONR) are held at HPA Site throughout the year.

The role of the Nuclear Decommissioning Authority (NDA)

The Energy Act 2016 Regulations 2017 requires that the NDA must prepare a strategy for carrying out its functions and from time to time to review that strategy. This strategy must set out the steps that the NDA proposes to take for:

- giving appropriate publicity to its responsibilities and strategy;
- explaining them both to persons having a particular interest in matters relating to the carrying out by the NDA of its functions and to the general public;
- ensuring that the NDA is kept informed at all times of the opinions about such matters of persons having such a particular interest;
- facilitating the communication by such persons of their opinions to the NDA.

The NDA is also required to give encouragement and other support to activities that benefit the social or economic life of communities living near those sites for which it has responsibilities, including Hinkley A.

Appendix D

Format of Land Quality Assessment Form

QUESTIONS TO BE ADDRESSED WHEN APPROVING PROPOSALS FOR WORK ON SITE

1. Does the proposed work have any potential for disturbance / mobilisation of existin contaminated ground and/or groundwater?	ng			
	Yes/ No*			
Such work may involve excavations, advancing of boreholes or piles, changes in ground cover, changes to surface water drainage, groundwater abstraction, ground de-watering.				
If the answer to 1a is Yes:				
1	Yes/ No*			
The answer to this question shall be based on the <i>Site Land Quality Interface</i> person consulting the site's <i>Land Quality Map</i> and related <i>Land Quality Register</i> , noting that indirect effects such as modification of groundwater pathways can mean that work in one area may affect contamination present in another area. If in doubt, consult the <i>Land Quality Technical Lead</i> for the site.				
If the answer to 1b is Yes:				
Give details of the mitigation measures specified to eliminate / mitigate any potential impacts. Specified mitigation measures:				
	Yes/ No*			
Give details of who was consulted. Give name and role, e.g. <i>Land Quality Technical Lead</i> of Environmental SQEP:	or			
7	Yes/			
undertaking the work to contaminants at levels that should be taken into account in the Method Statements and Risk assessments for the work?	No*			

This question should be answered with reference to the site's Land Quality Map and related Quality Register . If yes, detail the measures to be put in place to provide adequate protection the workers.			
Chacified mitigation massures:			
Specified mitigation measures:			
Was specialist advice sought in answering Question 2?	Yes/ No*		
Give details of who was consulted. Give name and role, e.g. COSHH Assessor / Accredited Physicist:	Health		
Assessment prepared by (give name & role and date):			
Assessment approved by (give name & role and date):			
Completed form to be filed as appropriate - e.g. with relevant Decommissioning Proposal Approval Form (DPAF; F-142).	l		
Unexpected contamination: Any unexpected <i>contamination</i> identified <u>during the works</u> shall be reported to the Nominated Responsible Engineer, to the site's <i>Site Land Quality Interface</i> person and to the <i>Land Quality Technical Lead</i> for the site, who will provide initial advice on what action to take and whether to amend the <i>Land Quality Map</i> and <i>Land Quality Register</i> .			

* Delete as applicable