

Magnox Limited

Hinkley A Site

Environmental Management Plan

2017/2018





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 Office For Nuclear Regulation (ONR)) in July 2003 subject to 6 conditions. In compliance with condition 2, an Environmental Management Plan was prepared to provide information relating to environmental risks and mitigations anticipated and arising during the project.

This document is the fifteenth issue of the Hinkley Point A Environmental Management Plan which has been updated annually in compliance with condition 5 of the consent.

This document provides detail of the mitigation measures available to 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 on site during decommissioning activities carried out in 2017/18.

Peter Montague
Closure Director
Hinkley Point A
October 2017



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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 6 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 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 the conditions of consent as follows:

- Condition 3: This document lists the mitigation options and work activities expected to be required at the various stages of decommissioning.
- Condition 4: This document identifies the mitigation measures that have been carried out including a description of effectiveness and any significant changes.

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 management).

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 the 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:

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



Main Entrance - Hinkley Point A

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 Point B) and a new build nuclear site (Hinkley Point C – see picture).

This EMP details the mitigation measures employed on site 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 Point A consists of a phased approach. These 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 human intervention to maintain acceptable conditions is minimised, i.e. the Care and Maintenance period (C&M).

- **Care & Maintenance (C&M)**

This is a mainly quiescent phase expected to last for some decades and will require the management, maintenance and monitoring of the Hinkley A site 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 period.

- **Final Site Clearance**

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



HPC Site Construction

This EMP is structured around these three phases. However, it is expected that mitigation measures may change in the future in light of experience and developing technologies. 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 changes made.

The mitigation measures described in the Environmental Statement have been extracted and tabulated in Section 4.

Topics

The Environmental Statement that accompanied the application for consent in 2001 described potential beneficial and adverse environmental impacts of the Hinkley A decommissioning project.

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 Draining**
- **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 and landscaped areas (wooded and grassy areas).



View of Hinkley Point 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. During operation the reactors were cooled using carbon dioxide. Boilers converted water to steam in order to drive the turbines located inside the turbine hall which has now been de-planted and is awaiting demolition. 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 are connected to the turbine hall by means of large underground tunnels which are now blanked off.

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.

Other buildings and plant include the pond buildings, national grid substation, workshops, stores and offices.

Sensitivity of Receiving Environment

Hinkley A is located 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 new 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.

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 site of known archaeological interest at Hinkley Point, namely an early Bronze Age burial mound or tumulus dating from around 1500BC. This site is known as Pixies Mound (Wick Barrow) and is a Scheduled Monument.

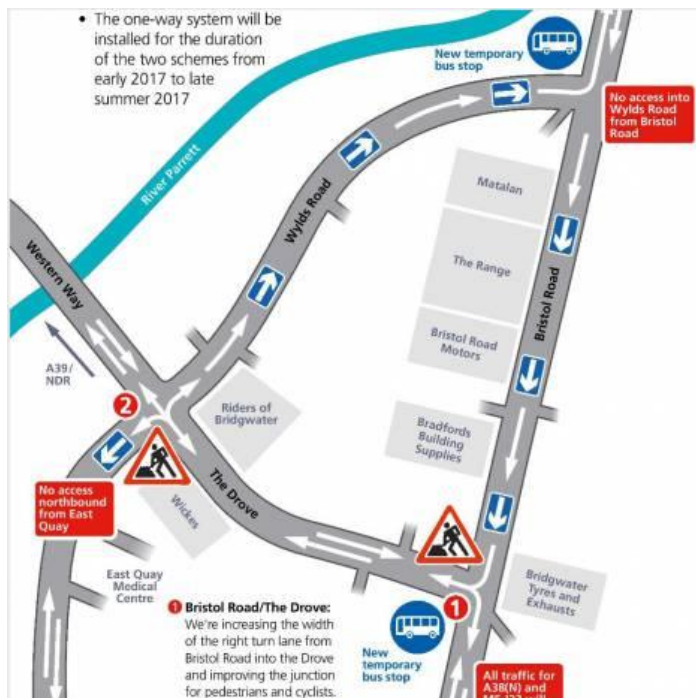


Wick Barrow dating from 1500BC

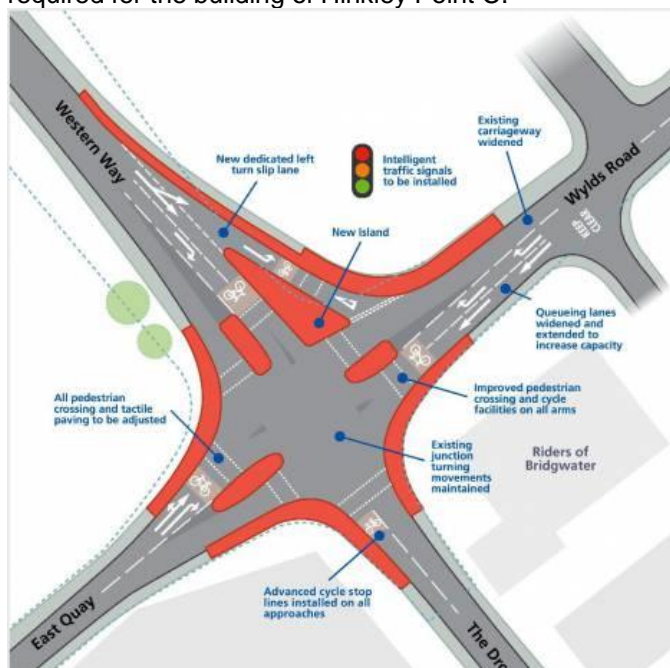
Transport Infrastructure

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. A bypass has been constructed to ease congestion in the village of Cannington and allow easier access to Hinkley Point.

Extensive upgrade work has taken place in and around Bridgwater to upgrade the road network to mitigate the increased traffic that will impact on the area; two examples of this are shown below:



The works are part of an agreed schedule of improvements required for the building of Hinkley Point C.



Surrounding villages including Nether Stowey can access the site from the west via the A39 or via inter-connecting country lanes which also give access to the C182 either through Stogursey or Shurton.

There is no direct rail access to the site. The nearest rail access for passengers and freight is at Bridgwater involving vehicle movement through the centre of Bridgwater and the village of Cannington to reach the site. Bridgwater station is on the main line between Exeter and Bristol extending to the wider national rail network.

The closest access via water is currently at Combwich Wharf, which is owned by EdF Energy. There is a cross company agreement that gives Hinkley A access to the wharf. HPC have commenced early activities to upgrade the wharf. A jetty is currently being constructed to allow sea deliveries during the construction phase of HPC.

HPC Jetty Construction



The area around the site is served well by a network of public footpaths and bridleways. This includes the coastal path which runs along the shoreline, to the east of Hinkley A and B site.

Hinkley Point C

Work is continuing adjacent to Hinkley A site in connection with the nuclear new build known as Hinkley Point C site. Current works at Hinkley Point C has seen a steady increase to the number of vehicles using the site access road which are not related to decommissioning activities at Hinkley A.

A new bypass has been constructed to divert construction and other Hinkley traffic away from the village of Cannington.

Hinkley A site is supporting preparations for HPC's dewatering activities, i.e. the installation of boreholes and supporting preparations for new electrical supplies to the HPC site. There are arrangements in place for funding those activities across the sites. Hinkley A has established a specific liaison role which is the first point of contact and enables information passed in either direction to be directed to the correct personnel.

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) 1999 Regulations (TCP(EIA) 99), Environmental Statements were compiled in which potential impacts and key mitigation measures were identified for the three stages 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 (October 2015) 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	Nature of impact	Mitigation Measures Identified
Air Quality and Dust	Dust emissions during excavation, demolition and construction activities (including handling and storage of soil and material)	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Sheeting of lorries containing materials and spoil export Enclosing containers during loading and transport Wheel washing of vehicles when leaving the site
Archaeology and Cultural Heritage	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 April 1999.

Table 1 Continued: Care & Maintenance Preparations Phase

Mitigation measures already identified (Condition 3a) - continued

Topic	Nature of impact	Mitigation Measures Proposed
Ecology	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	<ul style="list-style-type: none"> Grassland will be reinstated after removal of spoil mound Landscape planting will provide some replacement habitat (See Landscape and Visual) Retained areas of valuable habitat will be protected with appropriate fencing
	Disturbance to nesting birds as a result of clearance of vegetation (or demolition of buildings)	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Appropriate fencing and other barriers will be erected to protect particular sensitive areas Close boarded fencing around the construction site will be erected to mitigate noise and human disturbance Noisy operations will be programmed sensitively
	Increased road mortality for badgers, nesting birds and great crested newts	<ul style="list-style-type: none"> Implement speed limits
	Dust deposition on coastal grassland, species rich grassland and scrub along Branland Copse	<p>See mitigation measures proposed under 'Air Quality and Dust' topic in this table</p>
	Pollution/sedimentation of freshwater habitats for water voles and otters	<p>See mitigation measures proposed under 'Surface Waters' topic in this table</p>
	Habitat creation	<ul style="list-style-type: none"> A new pond will be created to provide additional breeding habitat for amphibians
Geology, Hydrogeology and Soils	Changes to groundwater quality through disturbance of contaminated soils from excavation of subsurface structures and/or surfaces	<ul style="list-style-type: none"> A programme of sampling and testing of soils during excavation will be agreed with the EA and HSE 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 high pH water. Detailed proposals will be made for the collection and disposal of any potentially radiologically contaminated groundwater

Table 1 Continued: Care & Maintenance Preparations Phase

Mitigation measures already identified (Condition 3a) - continued

Topic	Nature of impact	Mitigation Measures Proposed
	Changes to groundwater quality through spills and leaks	<ul style="list-style-type: none"> • Utilisation of appropriate measures recommended in EA Pollution Prevention Guidance Notes (PPG2 and PPG6) • 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 sand, dispersants and oil booms
	Changes to groundwater level	<ul style="list-style-type: none"> • Inert backfill (e.g. uncontaminated demolition rubble from the site) would be placed and compacted within underground structures and artificial drainage points created to prevent build-up of groundwater levels
Landscape and Visual	Visual impact from the site wide demolition activities and construction of Intermediate Storage Facility (ISF) and Intermediate Level Waste (ILW) store etc.	<ul style="list-style-type: none"> • Planting scheme will be implemented: • This will include additional off-site woodland planting to the south of the car park and visitor centre. It will soften views of Hinkley Point A site from viewpoints to the south west. • Additional on-site tree planting at the southern part of the site, but outside of the inner security barrier, situated to the north and to the north east of the reactor buildings. • Extensions to the existing Branland Copse mitigating views from the coastal path. • Provide an area of open tree planting and indigenous grassland within the site, but outside of the inner security barrier, situated to the north and to the north east of the reactor buildings. • <u>Provide a long-term visual softening in long views from the access road and mitigate the views of the ISF from the south and the south east by creating a wide hedgerow with trees.</u> • <u>Visual extension of Branland Copse North by creating a 4m hedgerow along the north part of the western boundary.</u> • <u>Mitigate the loss of grassland habitat resulting from the ISF development (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.</u> • Design, siting of buildings and choice of colour of cladding materials have been developed with the aim of reducing the visual impact.

Table 1 Continued: Care & Maintenance Preparations Phase

Mitigation measures already identified (Condition 3a) - continued

Topic	Nature of impact	Mitigation Measures Proposed
Noise and Vibration	Noise from site activities (demolition, construction of ISF, etc.)	<ul style="list-style-type: none"> All construction activities to be undertaken in accordance with good practice as described by British Standard 5228: 2009 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
	Noise related to transport	<ul style="list-style-type: none"> <i>Maximum axle weights for transportation of plant materials and waste could be imposed by contract</i>
Socio-economic	Reduction in number of site personnel	<ul style="list-style-type: none"> <i>Phasing of employment reductions</i> <i>Maximising opportunities for employment continuity or redeployment within the Company for site personnel</i> <i>Maximising take-up of the voluntary severance scheme</i>
	Change in employment level in local economy; change in level of local expenditure	<ul style="list-style-type: none"> Use of locally based contractors Maximise the opportunities for locally-based businesses to secure involvement as contractors, sub-contractors and suppliers
Surface Waters	Changes to surface water quality through uncontrolled discharges arising from excavations into contaminated soils	<ul style="list-style-type: none"> <i>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</i> <i>Any contaminated soil will be isolated and appropriately disposed of</i> <i>Drainage from excavation areas will be collected and managed</i>

²BS5228 : 1997 has been superseded by BS5228 : 2009 parts 1 and 2.

Table 1 Continued: Care & Maintenance Preparations Phase

Mitigation measures already identified (Condition 3a) - continued

Topic	Nature of impact	Mitigation Measures Proposed
Surface Waters (Continued)	Changes to surface water quality through uncontrolled discharges of sediments and/or turbid water into surface drains and surface water courses	<ul style="list-style-type: none"> • Follow EA Pollution Prevention Guidelines (PPG 1 and PPG 5) Follow EA's "Is your site right?" checklist • Minimise stockpiling of loose materials • Seeding of the soil stockpile to reduce wash-off of suspended solids • 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 approximately sized grills on drains
	Changes to surface water quality through uncontrolled discharges of contaminated water through spills and leaks of non-radioactive material (e.g. concrete, cement, fuels, oils or other chemicals)	<ul style="list-style-type: none"> • Follow EA Pollution Prevention Guidelines (PPG 2 and PPG 21) • Appropriate siting, bunding and drainage of fuel/oil tanks and concrete mixing facilities • Handling protocols for washing out of concrete mixing plant and refueling • 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 sand, dispersants and oil booms to control spillages
Traffic and Transport	Mud on public highways	Wheel washing of HGVs is proposed to prevent mud being carried onto local roads from the site

Table 2: Care & Maintenance Phase

Mitigation measures already identified (Condition 3a)

Topic	Nature of impact	Mitigation Measures Proposed
Ecology	Disturbance to birds from traffic noise during removal of ILW	<ul style="list-style-type: none"> Removal operations will be programmed sensitively
	Increased road mortality for great crested newts during removal of ILW	<ul style="list-style-type: none"> The presence or otherwise of great crested newts could be monitored as part of site management during C&M phase A detailed mitigation plan will be developed
Geology, Hydrogeology and Soils	Changes to groundwater quality through disturbance of contaminated soils from excavation of subsurface structures and/or services	<ul style="list-style-type: none"> A programme of sampling and testing of soils during excavation will be agreed with the EA and the HSE (now the ONR) Management of contaminated soils to avoid leaching into previously clean soils and groundwater
Landscape and Visual	Visual impact from the constructed ISF	<ul style="list-style-type: none"> The planting management regime (e.g. replacing of trees and scrubs, thinning) would be agreed with the local planning authority, as relevant and appropriate
Surface Water	Avoidance of localized flooding	<ul style="list-style-type: none"> 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	Nature of impact	Mitigation Measures Proposed
All topic areas	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.

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 lists the measures (identified in Table 1) which have been implemented, explains how the site measures their effectiveness in reducing environmental impacts and describes their use in some relevant projects from 2016/17.

Process for Implementation of Mitigation Measures

Hinkley A site procedures 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), ISO 14001 (Environmental Management Systems) and OHSAS 18001 (Occupational Health and Safety Management System).

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.



Seaweed sampling at HPA

Processes for Determining Effectiveness of Mitigation Measures

The site aims to continually monitor the effectiveness of mitigation measures over time and where necessary review these in order to ensure the success of reducing significant environmental impacts. A key part of this process is the close interaction between the Project Teams and the Environment Team, 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.

Examples of Work Completed Requiring Mitigation Measures

Limited decommissioning work has been undertaken during the period. This resulted in few potential environmental impacts; therefore many of the mitigation measures described in the previous section have not been required.

The Ponds Project has now completed the Hinkley scope of work and the majority of the team has moved on to Oldbury. Hinkley Ponds have been drained. Work began in 2005 and following a pause in project work from 2010-2012, physical decommissioning work recommenced in 2013. Approximately 10m³ of highly active sludge and over 5000m³ of water has been removed, significantly reducing the radioactive hazard inventory at the site.

The photos below demonstrate the level of remediation that has been undertaken in the fuel ponds; what was once one of the highest hazard areas on site can now be accessed without respiratory protection. Where the personnel are stood in the picture below once housed spent reactor fuel under six metres of water.



Air Quality and Dust

Activities inside and outside buildings including the pond wall shaving were subject to dust suppression and filtration removing the risk of dust emissions to the environment. Area of Potential Concern (APC) 9 has dedicated misting devices to suppress the generation of dust during drilling and excavation activities.

Ecology

A phase 1 habitat survey and targeted protected species survey was undertaken in May 2010. The survey concluded that the site is a potential nesting site for a number of bird species. Ecology inspections are

undertaken prior to any building demolition and expert advice sought as necessary.

Geology, Hydrogeology and Soils

Borehole sampling was undertaken on the Hinkley A site to determine the extent of legacy oil ground contamination associated with Area of Potential Concern (APC) 9; a contract was, consequently, awarded to carry out remediation. The work to remediate was completed with key functional requirements confirmed in November 2016



APC 9 Ground Remediation at HPA

The following mitigations have been employed on site during routine works:

- Sampling and testing of all soil excavated to determine the appropriate disposal route/re-use
- Polythene sheeting laid down beneath the excavated soil to prevent leaching/washing of contamination to ground or drains
- Polythene sheeting available to cover excavation material in the event of heavy rainfall or wind to prevent leaching/dispersion
- Briefing of all site engineers involved in any site excavation to be aware of the potential for contamination and instructed to contact the relevant environmental/waste engineer should any obvious contamination be found e.g. presence of hydrocarbons etc.
- Provision of spill kits in the vicinity of the work

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.

Landscape and Visual

Planting proposals outlined in Table 1 are to be implemented following completion of work.

An area has been cleared and a concrete slab prepared for the construction of the Interim Storage Facility and Encapsulation Plant. Construction of the ISF is currently in progress with construction of the encapsulation plant to follow.



and has mitigated the significant environmental risk associated with legacy caustic liquids being stored indefinitely in redundant tanks.

Site management procedures ensure well managed oil and chemical storage areas and routine inspection and maintenance of tanks and oil interceptors.

Traffic and Transport

Transport levels in the local area will have increased due to the development of the Hinkley Point C site and the requirement for changes to the road layout immediately to the south of the site. Construction of the Cannington bypass is intended to help to alleviate traffic in the village.

Traffic concerns are raised at the SSG meetings; some complaints relating to speeding vehicles have been received through this forum. Coincident with EdF, the site management team has taken action to remind Hinkley Point A staff and contractors of the expectation that, where practicable, the bypass should be used. In addition, a reminder that adherence to speed limits is both an expectation from a stakeholder management perspective and legal obligation has been issued.

Noise and Vibration

All construction activities on site are subject to management procedures which require implementation of relevant good practice standards and procedures. All noise generating activities are normally restricted to between the hours of 08:00 and 17:00.

Any work which is likely to cause significant noise is managed to ensure that no nuisance is caused and to ensure no detriment to sensitive environments. No reports have been received relating to excessive noise for 2016/17.

Socio-Economic

The total workforce (staff, agency and contractors) on site has reduced in recent years but will flex during to reflect the current decommissioning status; ultimately the reduction will continue until C&M entry. The site aims to mitigate the impacts of reduction in site personnel through staff redeployment within the company and the voluntary severance scheme. Change in employment levels in the local economy is mitigated by maximising the opportunities for locally-based businesses and through employment of locally based contractors.

Surface Waters

Removal of redundant, legacy wastes continues on the site with conventional water treatment plant tanks drained, remedially cleaned and deplanted. This has had the effect of removing a significant volume of legacy caustic waste

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 Environmental Management Plan. Hinkley A site 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 Point A or requests for copies of this EMP should be addressed to:

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

In addition to the submission of this EMP to the ONR, Magnox Ltd will make the document publicly available via the Magnox Website and will provide copies to the:

- Hinkley Point A Site Stakeholder Group

This EMP may be viewed at the following locations:

- Burnham and Highbridge Council Hinkley Point A Site Stakeholder Group
- Nether Stowey Library
- www.magnoxsites.com/publications

8. Definitions

AONB	Area of Outstanding Natural Beauty	NAPL	Non Aqueous Phase Liquid
APC	Area of Potential Concern	NNR	National Nature Reserve
BAP	Biodiversity Action Plan	OHSAS 18001	Accreditation system for Occupational Health and Safety Management Systems
BAT	Best Available Techniques	ONR	Office of Nuclear Regulation
DPAF	Decommissioning Project Approval Form	SAC	Special Area of Conservation
EA	Environment Agency	SLA	Special Landscape Areas
EIADR99	Nuclear Reactors (Environmental Impact Assessment for Decommissioning) Regulations 1999	SPA	Special Protection Area
EMP	Environmental Management Plan	SSG	Site Stakeholder Group
HSE	Health and Safety Executive	SSSI	Site of Special Scientific Interest
ILW	Intermediate Level Waste		
ISF	Interim Storage Facility		
ISO 9001	Accreditation system for Quality Assurance		
ISO 14001	Accreditation system for Environmental Management Systems		

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				
Both 5.1 and 5.2 are to be categorised individually before an overall environmental category is assigned in 5.3.				
5.2	EIADR 99 ENVIRONMENTAL IMPACT AND REGULATORY COMPLIANCE The following checklist must be completed by an Environmental SQEP/S* . The assessment is 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. *Generally Environmental SQEP/s on site have competency to assess all aspects of 5.2, where this is not the case, the site must ensure that appropriate assessment is made.			
	PARAMETER	CONSIDER POTENTIAL FOR:	NO	YES
5.2.1	Decommissioning Baseline	Does this proposed modification represent a change from the Decommissioning Project baseline as described in the Environmental Impact Assessment Baseline document (in particular, is it sufficient to trigger Regulation 13 determination)? If 'YES', it is considered to be a change - complete the relevant Assessment Forms in accordance with S-159.	<input type="checkbox"/>	<input type="checkbox"/>
5.2.2	Management	Does the proposal challenge compliance with the EIADR Regulations including adequacy of mitigation measures proposed?	<input type="checkbox"/>	<input type="checkbox"/>
5.2.3	Discharges & Waste	Could the proposal, if inadequately conceived or executed, lead to a breach of an existing Environmental Permit, or other environmental license/regulatory requirement (e.g. wildlife management license, PCB registration, greenhouse gas trading permit, marine consent, waste management exemption)? (For Scottish sites, a breach of a Controlled Activities Regulations Discharge Consent, Pollution Prevention Control Permit, Waste Management / Exemption?)	<input type="checkbox"/>	<input type="checkbox"/>
5.2.4	Discharges & Waste	Is a change to an existing Environmental Permit or new Environmental Permit required for this proposal? (For Scottish sites, a change to existing/or a new Controlled Activities Regulations Discharge Consent, IPC authorisation, PPC Permit, Waste Management / Exemption?)	<input type="checkbox"/>	<input type="checkbox"/>
5.2.5	Environmental Impacts	Could the proposal, if inadequately conceived or executed, lead to a an unacceptable environmental impact (e.g. inadequate storage of oils and chemicals leading to on or off-site spill, disturbing known or suspect contaminated ground)? If so, appropriate controls/ mitigation must be specified	<input type="checkbox"/>	<input type="checkbox"/>
5.2.6	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.			
5.2.7	CONTROL MEASURES AND COMMENTS Describe the control measures that will be used to ensure that environmental risks will be acceptable.			
5.2.8	Potential Environmental Category with respect to EIADR 99 Compliance and all other environmental aspects:			
	E1 <input type="checkbox"/>	E2 <input type="checkbox"/>	E3 <input type="checkbox"/>	
	Name: Environment SQEP	Signature:	Date:	

Appendix B – Continued

Minimising Environmental Impacts — Decommissioning Proposal Approval Form

PART 5 – ENVIRONMENTAL SAFETY ASSESSMENT														
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 and EHSS&Q Manager as appropriate.													
5.3.1	ENVIRONMENTAL JUSTIFICATION / MITIGATION													
5.3.2	<p>OVERALL ENVIRONMENTAL CATEGORY</p> <p>The environmental category is determined by reviewing the adequacy of the environmental hazard identification and assessment carried out and consider whether any other relevant aspects of the category definitions given in MCP-099 Appendix 1 are relevant. Select the relevant box below.</p> <p>Environmental control and mitigation measures required have been identified above and will be incorporated in the design or working methods. Any further Environmental Justifications (e.g. BAT / BPM) should be attached.</p> <p>RECOMMENDED ENVIRONMENTAL CATEGORY:</p> <table border="1"> <tr> <td>E1 <input type="checkbox"/></td> <td>E2 <input type="checkbox"/></td> <td>E3 <input type="checkbox"/></td> </tr> <tr> <td>Name: <i>Environment SQEP</i></td> <td>Signature:</td> <td>Date:</td> </tr> </table> <p>For category E1 modifications, two additional signatures are required:</p> <p>1) Confirm awareness of the modification proposal.</p> <table border="1"> <tr> <td>Name: <i>EHSS&Q Manager</i></td> <td>Signature:</td> <td>Date:</td> </tr> </table> <p>2) Confirm that the modification proposal has been reviewed by Head of Profession – Environment and that comments / recommendations have been addressed.</p> <table border="1"> <tr> <td>Name: <i>NRE</i></td> <td>Signature:</td> <td>Date:</td> </tr> </table>		E1 <input type="checkbox"/>	E2 <input type="checkbox"/>	E3 <input type="checkbox"/>	Name: <i>Environment SQEP</i>	Signature:	Date:	Name: <i>EHSS&Q Manager</i>	Signature:	Date:	Name: <i>NRE</i>	Signature:	Date:
E1 <input type="checkbox"/>	E2 <input type="checkbox"/>	E3 <input type="checkbox"/>												
Name: <i>Environment SQEP</i>	Signature:	Date:												
Name: <i>EHSS&Q Manager</i>	Signature:	Date:												
Name: <i>NRE</i>	Signature:	Date:												

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 A and B sites are represented and an update is provided on site works. The chair regularly meets with the Hinkley A Site Closure Director and is also in regular contact with the Nuclear Decommissioning Authority (NDA).

The role of the Nuclear Decommissioning Authority (NDA)

The Energy Act (2004, as Amended) 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

In considering proposals for work on a site (through Modifications approval or method statement approval processes), a number of questions relevant to land quality must be answered. These are set out below in a pro-forma, the layout of which may be adapted for use within an existing procedure.

1. Does the proposed work have any potential for mobilisation of existing contaminated ground or groundwater?	
1a. Will the proposed work involve 'breaking ground' or otherwise have the potential to affect the sub-surface? Such work may involve excavations, advancing of boreholes or piles, changes in ground cover, changes to surface water drainage, groundwater abstraction, ground de-watering.	Yes/No
If the answer to 1a is yes: 1b. Is there any existing known or suspected contaminated land that could be affected significantly by the proposed work? The answer to this question shall be based on consultation of the Land Quality Map and related Land Quality Register, noting that indirect effects such as modification of groundwater pathways can mean that work in one area may affect contamination present in another area.	Yes/No
If the answer to 1b is yes: Give details of the mitigation measures proposed to eliminate / mitigate any potential impacts. Proposed mitigation measures:	
Was specialist advice sought in answering Question 1?	Yes/No
Give details of who was consulted. Give name and role, e.g. Intelligent Customer (land contamination) or Environmental SQEP:	
2. Does the proposed work have any potential to result in exposure of those undertaking the work to contaminants at levels that should be taken into account in the Method Statements and Risk assessments for the work?	
This question should be answered with reference to the Land Quality File . If yes, detail the measures to be put in place to provide adequate protection of the workers. Proposed mitigation measures:	Yes/No
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 Health Physicist:	
Assessment prepared by (give name & role and date):	
Assessment approved by (give name & role and date):	

Appendix E

Principles for a Travel Plan

Objective

All decommissioning operations involving transport will be managed so as to minimise the environmental effects of these operations, as far as is reasonably practicable. The principles for achieving this are defined below.

Transport Management Principles

- The numbers of individual transport movements will be minimised as far as is reasonably practicable.
- Employees and contractors will be encouraged to use video and teleconferencing facilities as much as possible rather than travelling to other sites for meetings.
- Employees and contractors will be encouraged to share transport (or use public transport) when travelling to and from the Hinkley Point A Site.
- Employees and contractors will be given awareness training on the principles of eco driving to minimise the environmental effects of vehicle emissions.
- Magnox Ltd and its contractors will be required to maintain their vehicles in a good standard of condition.
- When appropriate, vehicles leaving the site will be subject to wheel wash and inspection to ensure that earth and other material is not unduly dispersed.
- On site roads will be swept as necessary to minimise the spread of material off site and/or into drains or watercourses.
- Signage will be provided at site exits to reinforce the contract requirements on vehicle drivers.
- Where practicable, transport distances will be minimised by the use of local disposal sites, recycling companies, etc.
- Most HGV transport movements will be undertaken during normal working hours.
- HGVs will be required to exit the site through the Hinkley Point A main gate and, where appropriate, to follow preferred routes to and from the strategic road network.
- In the event of the need for an abnormal load to be transported, a specific plan for this movement will be developed.