

Magnox Limited

Hinkley Point A Site

Environmental Management Plan

Issue 11 – October 2013





Hinkley Point A Site Environmental Management Plan

October 2013
Issue 11



FOREWORD

In January 2002 then Magnox Electric plc. applied for consent to decommission Hinkley Point A Nuclear Power Station under the Nuclear Reactors (Environmental Impact Assessment for Decommissioning) Regulations 1999 (as amended). An environmental statement accompanied the application. The consent was granted by the Health and Safety Executive in July 2003. In compliance with the conditions of the consent, the first issue of the site Environmental Management Plan was prepared. This detailed the agreed mitigation measures to prevent, reduce, and, if possible, offset any significant adverse environmental effects of the decommissioning work.

This document is the eleventh issue of the Hinkley Point A Environmental Management Plan. This document states the agreed mitigation measures and provides an update on decommissioning activities carried out during 2012/13. It also outlines how those measures to prevent, reduce and offset any significant adverse environmental effects of the decommissioning works are implemented on site and how the effectiveness of those mitigation measures is measured.

This document will be re-issued annually as agreed with the Health and Safety Executive.

As Site Director for Hinkley Point A Site, I look forward to a safe and successful decommissioning project and on behalf of Magnox Ltd, I give my on-going commitment to minimising any adverse effect on the environment as a consequence of our decommissioning operations.



Approved for Issue
L Talbot,
Site Director,
Hinkley Point A Site
October 2013

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1. INTRODUCTION

Hinkley Point A Reactor Site (hereafter Hinkley Point A) was formally shutdown in May 2000. The site has then entered a period of decommissioning, during this time the plant and buildings associated with electricity generation will be systematically removed. Prior to commencement of this work the licensee (then Magnox Electric plc) was legally required to gain consent to carry out the decommissioning project from the Health and Safety Executive (HSE) Under the Nuclear Reactors (Environmental Impact Assessment for Decommissioning) Regulations 1999 (as amended).

Following a period of extensive public consultation on the environmental statement, the HSE requested further information that was subsequently provided by the licensee in February 2003. A further public consultation was undertaken on the further information. The consent to decommission Hinkley was granted in July 2003, subject to six conditions. Most of the conditions were related to the preparation and maintenance of an Environmental Management Plan. This issue of the EMP is structured in a way to clearly demonstrate how Hinkley Point A meets the requirements of those conditions (listed in Appendix A). Other supporting information which may be of interest to the public, but is not directly required by the consent conditions, is located in the Appendices (e.g. stakeholder management).

A detailed decision report was prepared by the HSE in 2003, describing the content of the conditions attached to the consent, the main reasons and considerations for the decision. Copies of the document are available from:

Health and Safety Executive
Knowledge Centre
Redgrave Court
Merton Road
Bootle
L20 7HS

Tel: 0151 951 4000

email: knowledge.centre@hse.gsi.gov.uk

The report can be accessed at: <http://www.hse.gov.uk/nuclear/hinkley.pdf>

2. SCOPE OF THE ENVIRONMENTAL MANAGEMENT PLAN

Geographical Scope

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

Duration

The decommissioning project at Hinkley Point A is divided into the three phases described below:

Care and Maintenance Preparations (previously called the “Works Phase”)

During this current phase most of the radioactive and non-radioactive plant and buildings on the site (other than Reactor Buildings) will be dismantled. Initially this period will require the construction of new buildings to manage the decommissioned material. Upon completion of the Care & Maintenance Preparations phase the Site will be in a passively safe and secure state where the need for human intervention is minimised.

Care and Maintenance Phase

This is a mainly quiescent phase, lasting for some decades, during which the only dismantling will be of the Interim Storage Facility (ISF)¹. Dismantling of the ISF will be performed using conventional demolition techniques and is not anticipated to have significant adverse environmental effects. The rest of the Site will continue to be managed, monitored and maintained to ensure that it is retained in a passively safe and secure state.

Final Site Clearance Phase

The final phase of decommissioning is expected to last about 10 years. The Final Site Clearance phase involves dismantling of the remaining structures on the Site, including the reactors, the clearance of any residual radioactivity to the applicable standards, and the de-licensing of the Site so that it can be made available for alternative use.

This EMP is similarly structured around these three phases; this is predominantly because 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.

¹ The ISF has replaced the requirement for an ILW store and is intended to house MiniStores containing ILW until the national Geological Disposal Facility (GDF) becomes available (currently estimated 2040). The timing of demolition of certain facilities is uncertain, in any case mitigation measures in relation to impacts on air quality, ecology, surface waters, and traffic and transport will be utilised as described in table 4.1.

Topics

Environmental impacts (adverse or beneficial) were divided into topic areas within the original application to decommission Hinkley Point A in December 2001. These topic areas are continued within this document but they are also replicated during further environmental assessment for individual projects or plant modifications. These are the following:

- Air Quality and Dust
- Archaeology & 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 Point A is located on the South West coast of England in the county of Somerset, approximately 13 km North West of Bridgwater. The Hinkley Point A nuclear licensed site occupies an area of approximately 26 hectares. The site consists of a number of buildings as well as hard standings and landscaped areas (wooded and grassy areas).

The two reactor buildings are the dominant building on site (53m high by 105m by 56m). Each reactor building contains one reactor of the gas cooled, graphite moderated, Magnox type². The reactor cores are each contained in a large steel pressure vessel, surrounded by a concrete biological shield. The purpose of the biological shield is primarily to protect workers from direct radiation from the reactors themselves. Each reactor has a large pressure vessel that forms part of the 'primary circuit' comprising the pressure vessel itself. During the operation the reactors were cooled using carbon dioxide. Each reactor has six boilers, which converted water to steam in order to drive the turbines located inside the turbine hall. Cooling of the steam to return it to water was provided by seawater passed through condensing units located on the floor of the turbine hall beneath the turbines. The cooling water intake and outfall structures are located offshore and are connected to the turbine hall by means of large underground culverts.

Other buildings and plant associated with operation of the site included the cooling water pump house, the national grid substation, workshops, stores and offices.

Sensitivity of Receiving Environment

The nearest settlements to the site are villages of Knighton, Burton, Shurton, Wick and Stolford (located approximately 2-3km to the South and East). There are also a number of villages and hamlets widely dispersed around the network of minor roads leading off the A39 Bridgwater – Minehead road. The largest settlements nearby are Bridgwater (13 km South East); and Taunton (22km South East).

The main features of the topography surrounding Hinkley Point A are marshlands to the South and East, a double ridge and valley structure along the coast, a shallow sea cliff and extensive mudflats of Bridgwater Bay. A wave cut platform extends up to 500m from the cliff line and is exposed at low tide.

The Quantock Hills lie 7km South and extend to the coastline at Quantoxhead. They reach a height of approximately 350m and offer commanding views of the surrounding countryside. They have been designated as an Area of Outstanding Natural Beauty (AONB), and are generally well wooded and have gently rolling foothills mainly in agricultural use. In contrast, the flood plain of the River Parrett to the East is flat and low lying.

Although the Hinkley Point A nuclear licensed site itself is considered to be of very limited nature conservation value, the surrounding area includes landscapes and habitats of greater importance, including the following designated sites:

² 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.

- The Quantock Hills are an Area of Outstanding Natural Beauty (AONB), some 7 km south of the site and extend to the coastline at Quantoxhead.
- Exmoor and Quantock Oakwoods are on the east side of the Quantock Hills designated as a Special Area of Conservation (SAC).
- Hinkley Point A abuts the Bridgwater Bay Site of Special Scientific Interest (SSSI), which is also designated a National Nature Reserve (NNR).
- The wider Severn Estuary, which includes Bridgwater Bay, is designated a Special Protection Area (SPA) under the Birds Directive and a wetland of international importance under the Ramsar Convention, and is a Special Area of Conservation (SAC) under the Habitats Directive.
- A County Wildlife Site (CWS) lies to the west and south of Hinkley Point, within which lies Branland Copse north and south which are areas of broadleaved semi-natural woodland.
- Within a 10km radius of Hinkley Point A there are 2 other (small) 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. It is predominantly covered in blackthorn scrub and is fenced off from the surrounding grazed field.

Transport Infrastructure

The main vehicular access to Hinkley Point, 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 C1182 leads north to a private site access road. The route to the site from the M5 passes through both Bridgwater and Cannington, though Bridgwater itself has a bypass.

Road traffic approaching from the West is via the A39. From the village of Nether Stowey, inter-connecting country lanes give access to the C1182 either through Stogursey or Shurton.

There is no direct rail access to the site. The nearest railhead for passengers and freight is at Bridgwater involving vehicle movement through the village of Cannington into the centre of Bridgwater. There are connections from here to the country-wide rail network.

The closest access by water is at Combwich Wharf at Combwich, which is owned by EDF Energy. There is a cross company agreement that gives Hinkley Point A station access to the wharf. However, the channel may require dredging to make the wharf usable.

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 Point A and B sites.

Preliminary investigation work is continuing adjacent to Hinkley Point A site in connection with a potential nuclear new build (known as Hinkley Point C site). Those preliminary earthworks have increased the number of vehicles using the site access road. Those geotechnical works (and associated transport movements) are not related to decommissioning activities at Hinkley Point A.

4. MITIGATION MEASURES

4.1 MITIGATION MEASURES ALREADY IDENTIFIED (Condition 3a)

There are no significant changes to the mitigation measures compared with the October 2012 issue of the Environmental Management Plan, or to the mitigation measures identified in the Environmental Statement of 2001.

The mitigation measures are listed for each phase of the decommissioning project separately (Tables 1 – 3). Additionally, mitigation measures stated in the Environmental Statement In support of the application under the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999 (March 2004) have been included in this EMP.

The mitigation measures identified in both Environmental Statements are presented in the table 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 TCP (EIA) 99 only are underlined.

Table 1 - Care and Maintenance Preparations Phase

TOPIC	NATURE OF IMPACT	MITIGATION MEASURE 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 minimising 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).	<ul style="list-style-type: none"> <i>Royal Commission on the Historic Monuments of England (RCHME) level 1 survey of the affected site buildings to be undertaken prior to decommissioning. RCHME forms part of English Heritage</i>
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 <i>Landscape and Visual</i>). 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"> <i>All clearance of vegetation and demolition of buildings, likely to be of value to nesting birds, to be undertaken outside the bird breeding season.</i>
	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 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><u>See mitigation measures proposed under 'Air Quality and Dust' topic in this table</u></p>
	Pollution / Sedimentation of freshwater habitats for water voles and otters.	<p><u>See mitigation measures proposed under 'Surface Waters' topic in this table</u></p>
	Habitat Creation	<ul style="list-style-type: none"> <i>A new pond will be created to provide additional breeding habitat for amphibians (particularly great crested newts).</i>

TOPIC	NATURE OF IMPACT	MITIGATION MEASURE IDENTIFIED
<p>Geology, Hydrogeology and Soils</p>	<p>Changes to groundwater quality through disturbance of contaminated soils from excavation of subsurface structures and / or surfaces.</p>	<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. <p>Detailed proposals will be made for the collection and disposal of any potentially radiologically contaminated groundwater.</p>
	<p>Changes to groundwater quality through spills and leaks.</p>	<ul style="list-style-type: none"> • Utilisation of appropriate measures recommended in EA Pollution Prevention Guidance Notes (PPG 2 and 6). • A spill response plan will be produced to deal with the spillage and 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 to control spillages.
	<p>Changes to groundwater level</p>	<ul style="list-style-type: none"> • <i>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.</i>
<p>Landscape and Visual</p>	<p>Visual impact from the site wide demolition activities and ISF, etc.</p>	<ul style="list-style-type: none"> • Planting scheme will be implemented • Zone A 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. • Zone B will include additional on-site tree planting at the Southern part of the site. It is proposed to soften the views from the South, particularly from the A39 holiday route. • Zone C will include extensions to the existing Branland Copse and mitigate views from the coastal path. • Zone D will 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. • Zone E will provide a long-term visual softening in long views from the access road and mitigate the views of the ISF from the South and South East by creating a wide hedgerow with trees. • Zone F will provide a visual extension of Branland Copse North by creating a 4m hedgerow along the North part of the Western boundary. • Zone G will 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.

TOPIC	NATURE OF IMPACT	MITIGATION MEASURE IDENTIFIED
Landscape and Visual	Continued...	Design, siting of buildings and choice of colour of cladding materials have been developed with the aim of reducing the visual impact.
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 maximised 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; and 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 condition.</i>
Socio-Economic	Reduction in the number of station 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 station 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 minimise 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>
	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 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. Minimise movement of soil during wet weather. Cleaning of roadways, including use of recirculating wheel washers and road sweepers. Silt traps, balancing ponds and appropriately sized grills on drains.

TOPIC	NATURE OF IMPACT	MITIGATION MEASURE IDENTIFIED
<p>Surface Waters</p>	<p>Changes to surface water quality through uncontrolled discharges of contaminated water to surface watercourses through spills and leaks of non-radioactive material (e.g. concrete, cement, fuels, oils or other chemicals.)</p>	<ul style="list-style-type: none"> • Follow EA Pollution Prevention Guidelines (PPG 2 and 21). • Appropriate siting, bunding, and drainage of fuel/oil tanks and concrete mixing facilities. • Handling protocols for washing out of concrete mixing plant and refuelling. • 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.
<p>Traffic and Transport</p>	<p>Mud on public highways.</p>	<ul style="list-style-type: none"> • Wheel washing of HGVs is proposed to prevent mud being carried onto local roads from the site.

Table 2 - Care and Maintenance Phase

TOPIC	NATURE OF IMPACT	MITIGATION MEASURE IDENTIFIED
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 EA and HSE. 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 localised 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

TOPIC	NATURE OF IMPACT	MITIGATION MEASURE IDENTIFIED
Air Quality and Dust	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
Ecology	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
Geology, Hydrogeology and Soils	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
Landscape and Visual	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
Noise and Vibration	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
Surface Water	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
Traffic and Transport	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)

Currently a list of options to implement work activities beyond final site clearance phase has not been identified. As a result a list of mitigation measures required during any future phases cannot yet be identified.

5. IMPLEMENTATION OF MITIGATION MEASURES AND ASSESSMENT OF EFFECTIVENESS

It is a requirement of the conditions attached to the consent (See Appendix A), to implement the mitigation measures and describe their effectiveness. This chapter will discuss the measures (identified in Table 1) which have been implemented, how the site measures their effectiveness in reducing significant environmental impacts and describes their use in some relevant projects which have been carried out during 2012/13.

Processes for Implementation of Mitigation Measures

Hinkley Point 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 decommissioning project approval form) is used to determine whether further environmental assessment and mitigation is required (Appendix C).

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 will covers the requirements of ISO 9001 (Quality Assurance), ISO 14001 (Environmental Management Systems) & OHSAS 18001 (Occupational Health and Safety Management System).

Hinkley Point A also undertakes Best Available Techniques (BAT) studies for those projects where it is deemed that there is a 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, transparent process.

Processes for Determining Effectiveness of Mitigation Measures

The site aims to continually monitor the effectiveness of the specified mitigation measures over time, and where necessary review, in order to ensure the success of reducing significant environmental impacts. Interaction between the project and environment team from the conceptual stage through to the completion of the project allows identifying and planning need for any mitigation measures required. It also enables appropriate supervision and practical evaluation of the effectiveness of the mitigation measure. Evaluations can provide valuable feedback on any difficulties encountered, changes required or highlight further mitigation requirements.

The site measures the effectiveness of mitigations in a variety of ways, these are outlined below (individual topics are discussed in more detail in the following sections).

1) Environmental Performance Monitoring

Environmental performance monitoring (e.g. dust, noise, groundwater monitoring) using specialist equipment allows to assess environmental impacts post-mitigation (as well as baseline). Post-mitigation environmental monitoring will be used mostly to measure effectiveness of mitigation measures for larger projects on site, e.g. movement of large

quantities of spoil, or demolition of large buildings. The requirement of this method of measuring effectiveness is determined on individual project basis as appropriate.

2) Visual evidence

Site photographs taken before the start of a 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 measure. For example, presence of mud on roads can be an indication of insufficient wheel washing of HGVs.

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

Review of regulatory actions, complaints and internal event reporting is a form of reactive monitoring which can provide valuable information about where mitigations may not be effective or where further mitigations are required. The site operates a robust system of internal event reporting, where workers are encouraged to report conditions which are unsafe, pose a threat (or potentially) pose a threat to the environment. These are then investigated and rectified where necessary. For example, complaints from members of the public on noise related to activities on site can be an indication that additional silencers on equipment may be required, internal event reporting on sediments entering surface water drains may be an indication of ineffective seeding of soil stockpiles on site.

Although a 'clean sheet' may not necessarily mean mitigation measures are completely effective, it can indicate over a period of time that a significant environmental impact is effectively being mitigated.

Examples of Implemented Mitigation Measures

Within the previous reporting period two projects have had the potential to adversely affect the environment. During 2012/13 period the site has undertaken a project to construct a car park facility and a Buffer storage area. Work for both these projects required excavation and construction methods.

Mitigation measures implemented during the preparation and construction phases of these projects and any other examples of mitigation measures implemented on site during 2012/13 are discussed in more detail below.

Air Quality and Dust

During the preparation of the sites intended for the car park and buffer store facilities, excavation of concrete materials was necessary and as such mitigation measures identified in this plan were employed to reduce the generation of dust.

An example of this was the use of water employed during the cutting of concrete.



Wet road cutter was used to minimise dust generation

Ecology

A phase 1 habitat survey and targeted protected species survey for the entire Hinkley Point A site was undertaken in May 2010.

The survey concluded that Hinkley Point A site is a potential nesting site for a number of bird species, so building demolition works must be undertaken outside of the birds' breeding season, avoiding the period mid-February to August inclusive. During both the car park and buffer store project preparation phase, no demolition of buildings was required and the excavations were monitored to ensure that no nesting areas were disrupted.



Speed limits are implemented all around the site and in particular were included as part of the Traffic Management Plan for the Car Park Project, reducing the potential for road mortality of wildlife.

Geology, Hydrogeology and Soils

During the ground works of the car park project large areas of soil was excavated. In line with the mitigation methods set out in the 2011/2012 plan the following methods were employed:

- Sampling and testing of all soil excavated to determine the appropriate disposal route / reuse
- 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 the 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 / unknown chemicals etc.
- Provision of spill kits in the vicinity of the work

Part of site procedure for identifying/ implementing measures to prevent potentially contaminated soils leaching into ground or surface water is shown in Appendix D.

In addition to the above, storage areas on site are tightly controlled to reduce the risk of spillage by ensuring good housekeeping as well as robust delivery and handling procedures.

Landscape and Visual

In 2010 tree planting of the former CW pumphouse was completed in accordance with the original landscape proposals. The other planting proposals outlined in Table 1 are to be implemented as soon as identified areas are no longer in use and are available for development.

The siting and design of the buffer store was developed in line with the aim of reducing visual impact.

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 – 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 2012/13.

Socio-Economic

The total workforce (staff, agency and contractors) on site has reduced over the last few years. The site aims to mitigate the impacts of reduction in site personnel through staff redeployment within the company, voluntary severance scheme and staff counselling. Change in employment levels in local economy is mitigated through employment of locally based contractors, which is implemented through the 'Local Resources Initiative'.

Surface Waters

Site management procedures minimise the risk of changes to surface waters from uncontrolled discharges through leaks and spills. These procedures ensure well managed storage areas, routine inspection and maintenance of tanks and oil interceptors. Additionally an emergency plan is implemented which includes the provision of spill kits, frequent training to workers and emergency exercises. The site's internal reporting system also allows staff to highlight any areas which have the potential of leaks or spills.



As part of the Buffer store project, a wet cutter was used as a dust suppression method. To ensure that any water slurry generated during this process did not impact surface waters, a number of measures and handling protocols were adopted. During the process a wet vac was used to collect the slurry at source, additionally booms were used to restrict the spread of any additional slurry and local drains were protected.

Wet vac and spill boom used to collect slurry

Both projects required a number of cement deliveries during construction phase. A system was developed to reuse the wash water from all grouting / cement works. When this was no longer possible the water was stored in settlement skips to minimise the waste water produced. All of this work was done in accordance with the relevant EA guidance and also in liaison with the environmental regulator.



Solid waste removed from cement wash waters



Cement wash waters collected in skip

Traffic and Transport

During 2012/13 there have not been any HGV movements from Hinkley Point A which would have caused mud to be deposited onto public roads, i.e. all vehicle movements were from driving onto unmade ground within the site.

Effectiveness of mitigation measures can be measured through visual inspection of transport links in vicinity of the site. There have been no reports or complaints with regards to mud on highways.

6. DISTRIBUTION OF THE EMP

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

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

In addition to the submission of this EMP to the Office for Nuclear Regulation (ONR)³, Magnox Ltd will also provide copies to the:

- Hinkley Point A Site Stakeholder Group
- The Nuclear Decommissioning Authority

This EMP can be viewed at the following locations:

- Burnham and Highbridge Council
- Nether Stowey Library
- www.magnoxSouthsites.com/publications/environmental-reports

³ Office for Nuclear Regulation is new statutory body created on 1st April 2011. ONR encompass Nuclear Installation Inspectorate, which is now independent of the HSE.

7. ABBREVIATIONS

BPEO	<i>Best Practicable Environmental Option - The outcome of a systematic and consultative decision-making procedure which emphasises the protection and conservation of the environment across land, air and water. The BPEO procedure establishes, for a given set of objectives, the option that provides the most benefit or least damage to the environment As a whole, at acceptable cost, in the long term as well as in the short term.</i>
BPM	<i>Best Practicable Means</i>
EA	<i>Environment Agency</i>
EIADR99	<i>Nuclear Reactors (Environmental Impact Assessment for Decommissioning) Regulations 1999</i>
EMP	<i>Environmental Management Plan</i>
EMS	<i>Environmental Management System</i>
ES	<i>Environmental Statement</i>
HSE	<i>Health and Safety Executive</i>
ILW	<i>Intermediate Level Waste – waste with radioactivity levels exceeding the upper boundaries for low level waste (waste containing radioactive materials other than those acceptable for disposal with ordinary refuse, but not exceeding 4GBq/te of alpha or 12GBq/te of beta/gamma activity), but which does not require heating to be taken into account in the design of storage or disposal facilities.</i>
ISF	<i>The ISF has replaced the requirement for an ILW store and is intended to house MiniStores containing ILW until the national Geological Disposal Facility (GDF) becomes available (currently estimated 2040).</i>
ISO	<i>The International Standards Organisation - an international standard-setting body composed of representatives from national standards bodies. The organization produces world-wide industrial and commercial standards.</i>
LLW	<i>Low Level Waste – waste containing radioactive materials other than those acceptable for disposal with ordinary refuse, but not exceeding 4TBq/tonne of alpha or 12 TBq/tonne of beta/gamma.</i>
NDA	<i>Nuclear Decommissioning Authority</i>
NIA65	<i>Nuclear Installations Act 1965, as amended</i>
ONR	<i>Office for Nuclear Regulation – a new independent statutory body outside of the HSE</i>
NRE	<i>Nominated Responsible Engineer</i>
PCB	<i>Polychlorinated Biphenyls</i>
QE	<i>Qualified Expert</i>
SQEP	<i>Suitably Qualified and Experienced Person</i>
TCPA	<i>Town and Country Planning Application</i>
TCP (EIA) 99	<i>Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999.</i>
TFS	<i>Transfrontier Shipment of Waste</i>

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 project⁴ 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.

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

⁴ Project as defined in regulation 2.

The licensee is required to provide notice to the Health and Safety Executive of any significant change 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 on behalf of the
Health and Safety Executive
Signed
M W Weightman
A person authorised to act in that behalf

Appendix B - 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. Regular meetings are held with the Hinkley Point A and B Site Stakeholder Group.

Other local stakeholder groups include:

- Somerset County Council
- West Somerset District Council
- Environment Agency (EA)
- Natural England
- Somerset Wildlife Trust
- Royal Society for the Protection of Birds

External stakeholders participated in a site wide Best Practicable Environmental Option (BPEO) workshop on Intermediate Level Waste (ILW) management in January 2011.

Regular meetings are held with the Office for Nuclear Regulation (ONR) and the EA as part of routine inspections.

The Role of the Nuclear Decommissioning Authority (NDA)

The Energy Act (2004) 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 Point A.

Appendix C - Format of Decommissioning Proposal Form (DPAF)

Minimisation of environmental impacts during the defueling and decommissioning at Hinkley Point A site are managed through robust management procedures. All decommissioning activities and modifications to plant are assessed during the proposal stage. A template of questions is used to determine whether further environmental assessment and mitigation is required:

PART 5 – ENVIRONMENTAL SAFETY ASSESSMENT				
Subsections 5.1 and 5.2 to be categorised individually before overall environmental category assigned in subsection 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.		
5.2.2	Management	Does the proposal challenge compliance with the EIADR Regulations including adequacy of mitigation measures proposed?		
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?)		
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?)		
5.2.5	Environmental Impacts	Could the proposal, if inadequately conceived or executed, lead to 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		
5.2.6	If any of the questions above have been answered 'YES' then Environmental Justification/ Mitigation Statement must be completed in box 5.3 as part of the overall environmental justification. If all the answers are 'NO' then the proposal is Category E3 with respect to EIADR 99.			
5.2.7	CONTROL MEASURES AND COMMENTS			
5.2.8	Potential Environmental Category with respect to EIADR 99 Compliance. E1 <input type="checkbox"/> E2 <input type="checkbox"/> E3 <input type="checkbox"/>			
	Name: Environment SQEP	Signature:	Date:	

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 proforma, 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
1b: If the answer to 1a is yes 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 Index of Areas of Potential Concern in the Land Quality File, 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:	
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 need for an abnormal load to be transported, a specific plan for this movement will be developed.