Executive Summary

In September 2005 Magnox Electric Ltd (now Magnox Ltd) applied for consent to decommission Sizewell A under the Nuclear Reactors (Environmental Impact Assessment for Decommissioning) Regulations 1999 as amended.

The consent was granted by the Health and Safety Executive (HSE) (now Office For Nuclear Regulation (ONR)) in May 2006. There are six conditions attached to the consent, most of which relate to the preparation and maintenance of an Environmental Management Plan. This details the ongoing mitigation measures to prevent, reduce, and, if possible, offset any significant adverse environmental effects of the decommissioning work.

This document is the thirteenth issue of the Sizewell A Environmental Management Plan and provides an update on the activities undertaken in the last 12 months in addition to the details of the agreed mitigation measures. This document will be re-issued annually as agreed with the Office for Nuclear Regulation.

As Closure Director for Sizewell A, I look forward to a successful decommissioning project and on behalf of Magnox Ltd, I give my ongoing commitment to minimising any adverse effect on the environment as a consequence of our decommissioning operations.

Allen Neiling, Closure Director, Sizewell A

May 2018
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1. Introduction

Sizewell A Nuclear Site (hereafter Sizewell A) ceased generation of electricity on 31 December 2006. The site has now, in line with government policy, entered a period of decommissioning. During this time the plant and buildings associated with electricity generation will be systematically removed. Prior to the commencement of this work Magnox Electric Ltd (now Magnox Ltd), the licensee of the site, was legally required to gain consent to carry out the decommissioning project from the Health and Safety Executive (HSE) (now Office for Nuclear Regulation (ONR)).

Following a period of extensive public consultation the HSE granted consent in May 2006, subject to certain conditions (listed in full in Appendix A). Condition 2 requires the licensee to prepare an Environmental Management Plan (EMP) which shall:

- list the mitigation measures that are already identified in the Environmental Statement and evidence submitted (to the HSE) to verify information in the Environmental Statement;

- 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; and

- list the work activities where mitigation may be required but where assessments to identify mitigation measures will only be possible in the future.

It is a requirement of the conditions attached to the consent to describe the effectiveness of the mitigation measures over time. This EMP is therefore a living document that will be periodically reviewed and revised throughout the decommissioning project. The EMP will be reissued annually as agreed with the ONR. Other supporting information which may be of interest to the public, but not directly required by the consent conditions, is located in Appendices B, C, and D (e.g. stakeholder management, biodiversity).

A detailed decision report was prepared by the HSE (now ONR) in 2006, describing the content of the conditions attached to the consent, the main reasons and considerations for the decision. Copies of this document are available from:

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

Tel: 0151 951 4000
Email: EIA.Team@onr.gov.uk

Or via the internet from:

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

The Site Closure Director
Sizewell A Site
Nr Leiston
Suffolk
IP16 4UE
2. Scope of the Environmental Management Plan

Geographical Scope

The EMP provides a means of ensuring appropriate environmental monitoring is undertaken during the works and that amendments to the mitigations are identified and implemented as necessary.

The project area at Sizewell is the extent contained within the Nuclear Licensed Site covering an area of approximately 10 hectares; the area consists of a number of both temporary and permanent structures in the form of brick buildings and prefabricated buildings, as well as a road network. In addition to this the project area includes the two Off-shore Structures which mark the cooling water inlet and outlet points.

Duration

The decommissioning project at Sizewell A is divided into three phases: Care & Maintenance Preparations (C&MP), Care & Maintenance (C&M), and Final Site Clearance (FSC).

These phases are explained in Figure 1.

The mitigation measures listed in section 4.1 of this EMP are similarly divided into the three phases.

Mitigation measures may change in the future in light of experience and developing technologies. The impacts of the later phases of work have been documented in the original Environmental Statement, but due to the difficulty in predicting the nature of environmental and regulatory regimes over long periods, more confidence should be attached to the assessment relating to the earlier stages of the project. 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 the reasons for any changes made.

Topics

Beneficial or adverse environmental impacts are divided into 9 topic areas within the Environmental Statement as are the mitigation measures described in this EMP (see Figure 2).

In addition to the mitigation measures, a brief description of the Sizewell A Site and its surroundings is presented in this EMP together with an overview of the types of operations that will be carried out during Care & Maintenance Preparations. Further details for all phases of the decommissioning project at Sizewell A are presented in the Environmental Statement.
3. The Site and Surrounding Area

Site Description

The Reactor Building comprises two reactors of the gas-cooled magnox type. Each reactor pressure vessel is spherical, made from steel and is situated within a large concrete bioshield. Contained within each pressure vessel are the graphite core and a range of monitoring and control equipment. During operation the reactors were cooled using carbon dioxide. Each reactor has four boilers, all of which are external to the bioshield, 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 achieved by passing seawater through condensing units located on the floor of the Turbine Hall beneath the turbines. The cooling water intake and outfall structures are located off-shore and are connected to the Turbine Hall by means of large underground tunnels.

Other buildings and plant associated with operation of the site include the cooling water pumphouse, the National Grid substation, workshops, stores and offices.

Surrounding Landscape

The Sizewell A Site is located on the Suffolk Coast, just north of Sizewell village, at an altitude of approximately 9.45m Above Ordnance Datum (AOD). EDF’s Sizewell B station adjoins the A Site to the north. The coastal area is relatively low-lying and, with the exception of marginally more elevated ground to the west and north-west, remains below the 30m AOD contour. This gently undulating landform combined with existing trees and hedgerows tends to screen most inland views of both the A and B Sites in all but the closest viewpoints, with some notable exceptions just north of Leiston.

Transport Infrastructure

The main vehicular access route to Sizewell A Site from the national highway network is by way of the A12 which runs to the west of the site. The most appropriate route for HGV traffic travelling from the A12 is via the B1122 from Yoxford to Lover’s Lane and then onwards on the C228 to the Site Access Road. There is a limited bus service to Sizewell village, otherwise the nearest bus services are at Leiston. There is no rail access close to the site; the nearest station for passenger services is at Saxmundham some 5.5 miles (9km) away. There is a specific facility for cyclists and pedestrians which connects the site to Leiston; this is in the form of a shared path alongside the C228. In general, the proportion of staff walking or cycling to work is very low.

Local Watercourses

The main surface water feature in proximity to the site is the coastal water of the North Sea adjacent to the easterly edge of the nuclear licensed site boundary. There are several other freshwater features within 2km of the site including the Sizewell Belts (a network of drainage ditches) to the immediate west, and a small pond near Sizewell B off-site facilities. The site sits within a catchment area of approximately 8km². The catchment area drains to the Sizewell Belts, which in turn discharges north via the Leiston Brook (artificial channel) into the Minsmere River, and then to the North Sea via a sluice gate 2km to the north of site. Land to the south of the site is in a separate catchment which drains with the Hundred River approximately 2.2km away.

Geology and Hydrogeology

An area of made ground directly underlies the Sizewell A Site, previous surface deposits having likely been removed or reworked during the site construction. However, there are other loosely compacted deposits (drift) within the locality. An area of peat is located to the west of the site within the low-lying wetland area called the Sizewell Belts. To the north of the site and beyond Sizewell B is an area of marine tidal flat mud extending northwards to the Minsmere River and Minsmere Levels area and part of the Minsmere-Walberswick Heaths and Marshes Site of Special Scientific Interest (SSSI)/Special Area of Conservation (SAC) and Minsmere-Walberswick Special Protection Area (SPA)/Ramsar site. At a distance of between 200 and 1,000 meters away from the site to the north, south and west, glacioluvial drift deposits become more dominant. Isolated pockets of glacial clay (till), the so-called Lowestoft Till, are also present.

Below the made ground of the site are sandy deposits belonging to the Crag Group of Plio-Pleistocene age. Beneath approximately 60m of Crag is the Harwich Formation consisting of silty sandstone with volcanic ash layers and mudstones. The Crag and the Harwich strata are classed as minor aquifers.

Sensitivity of the Receiving Environment

The nearest settlements within a 10km radius of the site are Sizewell Village, Leiston, Aldeburgh, Saxmundham, Snape and Yoxford.

Sizewell A lies within the Suffolk Coast and Heaths Area of Outstanding Natural Beauty (AONB) which has been designated by the Countryside Commission (now Natural England) and confirmed by the government. A narrow coastal strip of the Suffolk Coast within the AONB in the vicinity of Sizewell has been defined by Natural England as Heritage Coast. Three Special Landscape Areas (SLA) are located to the west of the AONB, namely the Blythe, Minsmere and Hundred SLAs.

The following sites of nature conservation interest are located within the Sizewell vicinity:

- Minsmere-Walberswick Heaths and Marshes Special Area of Conservation (SAC) and Site of Special Scientific Interest (SSSI).
- Minsmere-Walberswick Special Protection Area (SPA) and Ramsar Site.
- Sizewell Marshes SSSI.
- Off-Shore Structures used by Kittiwakes etc. for roosting and breeding - County Wildlife Site.
- The Sandlings SPA.
- Leiston-Aldeburgh SSSI.
- Westleton Heath National Nature Reserve (NNR).
- Walberswick (Suffolk Coast) NNR.
- Dunwich Heath Nature Reserve.
- Alde-Ore SPA.
- North Warren RSPB Reserve.

There are no Scheduled Monuments on the site, the nearest is Leiston Abbey and moat. There are no listed buildings or designated geological sites of conservation value or Regionally Important Geological Sites (RIGS) within 2km of the site.

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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.
4. Mitigation Measures

4.1 Mitigation measures that have been identified

Introduction

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.

Sizewell 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.

The following tables list the mitigation measures for each phase of the decommissioning project at Sizewell A.

Care & Maintenance Preparations Phase

Mitigation measures already identified (Condition 3a)

<table>
<thead>
<tr>
<th>Topic</th>
<th>Nature of impact</th>
<th>Mitigation Measures Proposed</th>
</tr>
</thead>
</table>
| Air Quality and Dust          | Dust emissions (from on site), increase in site dust emissions due to construction, demolition and waste/materials handling operations etc. which could impact on residential and industrial receptors. | As appropriate:  
  • On site roads to be regularly cleaned of mud/dust deposits, including the use of recirculating water wheel washers and road cleaners as appropriate; and sheeting of vehicles carrying potentially dusty loads.  
  • Minimisation of unnecessary material and waste handling as far as practicable.  
  • Use of water sprays for external demolition activities as appropriate.  
  • Use of water sprays during outside infill operations.  
  • Avoidance of vehicular use on unsurfaced (soft) ground where possible and limits on vehicle speeds on such surfaces where it can not be avoided.  
  • Use of water sprays during particularly windy or dry conditions.  
  • Use of water sprays to maintain damp surfaces during dry and windy weather (e.g. soil stockpiles, demolition rubble); or sheeting or seeding of surfaces of stockpiles of soil or other dusty materials.  
  • Sheetimg or seeding of surfaces and/or use of wind fences as appropriate.  
  • Covering of containers and/or use of wind fences as appropriate. |
| Dust emissions due to any use of explosives. | Such activities will not be carried out under particularly dry or windy conditions, and local residents and Sizewell B will be informed in advance. |
| Increase in dust at residential properties along traffic routes due to soiled vehicles or vehicles carrying dusty loads. | As appropriate:  
  • Sheetimg of lorries carrying dusty loads.  
  • Provision of wheel washing for heavy goods vehicles on leaving the site. |
<p>| Archaeology and Cultural Heritage | No significant adverse environmental impacts identified arising from decommissioning activities. |</p>
<table>
<thead>
<tr>
<th>Topic</th>
<th>Nature of impact</th>
<th>Mitigation Measures Proposed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ecology</td>
<td>Loss of nest sites for Black Redstarts.</td>
<td>Provision of additional, appropriately designed nest boxes prior to the commencement of site works.</td>
</tr>
<tr>
<td></td>
<td>Loss of foraging habitat for Black Redstarts.</td>
<td>Minimisation of habitat loss, where reasonably practicable. At any one time parts of the site will provide potentially suitable foraging habitat for Black Redstarts.</td>
</tr>
<tr>
<td></td>
<td>Incidental mortality/noise (including explosions) and visual disturbance of Black Redstarts.</td>
<td>Employee awareness program and experienced individual tasked with identifying active nest sites.</td>
</tr>
<tr>
<td></td>
<td>Loss of nesting habitat for Kittiwakes.</td>
<td>Provision of additional nesting sites for Kittiwakes at the Lowestoft colony.</td>
</tr>
<tr>
<td></td>
<td>Incidental mortality of Reptiles.</td>
<td>Reptile proof fencing to be used to prevent reptiles from moving into working areas. Reptile proof fencing should be installed prior to works commencing, allowing a period of time for reptiles to move out of the working area.</td>
</tr>
</tbody>
</table>
| Geology, Hydrogeology and Soils | Inadvertent or uncontrolled disturbance or spreading of existing contaminated soils, including movement by windblown dust, entrainment in runoff, attachment to vehicles and/or inappropriate soil handling operations. | • Desk studies and site investigation, if necessary, before works commence in order to determine the presence or absence of contamination, so that appropriate working practices can be adopted from the outset.  
• Controlled access to or from known or potentially contaminated working areas as appropriate.  
• Use of recirculating wheel washers on lorries leaving site as appropriate.  
• See also measures under ‘Inadvertent contamination of soils and/or groundwater arising from temporary storage of contaminated soils, wastes or materials’.  
• See also control measures under ‘Air Quality and Dust’. |
|                               | Mobilisation of existing contamination by direct rainwater infiltration due to changes in ground coverage. | Investigation of contaminated soils prior to removal of hard-standings or buildings/ foundations (possibly by desk study alone if appropriate), with prior remediation if necessary. |
|                               | Mobilisation of existing contamination by direct rainwater infiltration due to the creation of temporary open excavations. | • Desk studies and site investigation, if necessary, before works commence in order to determine the presence or absence of contamination, so that appropriate working practices can be adopted from the outset.  
• Excavation dewatering, if necessary, with monitoring and appropriate management/disposal of any waters arising.  
• Tenting of exposed areas or excavations, if necessary. |
|                               | The potential contamination of ground and groundwater due to contaminated water entering those external drains that run to soakaways. | See mitigation measures required to prevent contamination of soils and/or groundwater; and spills and leaks. |
### Care & Maintenance Preparations Phase

**Mitigation measures already identified (Condition 3a) - continued**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Nature of impact</th>
<th>Mitigation Measures Proposed</th>
</tr>
</thead>
</table>
| Geology, Hydrogeology and Soils      | Creation of new contaminant migration pathways (e.g. due to the creation of boreholes, piles or excavations connecting previously unconnected geological strata). | • Compliance with British Standard 5930 (Code of Practice for Site Investigations) and BS 10175 (Investigation of Potentially Contaminated Sites – Code of Practice).  
  • Production of risk assessments, method statements and contingency plans. |
|                                      | Inadvertent contamination of soils and/or groundwater arising from temporary storage of contaminated soils, wastes or materials. | • Sampling and testing of soils, wastes and materials prior to storage as appropriate.  
  • Segregation as appropriate.  
  • Use of containment (e.g. membranes) to eliminate cross-contamination, as appropriate.  
  • Management of rainwater run-off from storage areas for contaminated or potentially contaminated soil, wastes and materials. |
|                                      | Inadvertent contamination of soils and/or groundwater arising from inappropriate use of contaminated soils, wastes or materials as infill materials. | • Sampling and testing of potentially contaminated soils, wastes and materials prior to use as appropriate.  
  • Authorised disposal of unsuitable soils, wastes and materials. |
|                                      | Changes in soil and groundwater quality due to spills or leaks of non-radioactive substances. | • Bunding of chemical and fuel storage according to EA Pollution Prevention Guidance (PPG) Notes 2 and 6.  
  • Appropriate protocols for chemicals and fuel handling in line with PPG 6, with trained staff only to operate facilities.  
  • Emergency spill response planning according to PPG 21, including spill kits kept on site and trained staff available. |
|                                      | Derogation of existing groundwater abstractions due to on site dewatering operations, if any. | If necessary, placement of recharge barriers as appropriate (i.e. inject back into the ground an equivalent amount of water to that extracted). |
|                                      | Changes in groundwater flow/water table regime beneath nearby sites designated for their ecological value due to on site dewatering operations, if any. | If necessary:  
  • Placement of physical barriers (e.g. sheet piles) and recharge barriers as appropriate (i.e. injection back into the ground an equivalent amount of water to that extracted).  
  • Provision of compensation flows directly into the feature affected. |

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*All Pollution Prevention Guidance has been withdrawn by the Environment Agency and is now only available through the ‘National Archive’.*
## Care & Maintenance Preparations Phase

**Mitigation measures already identified (Condition 3a) - continued**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Nature of impact</th>
<th>Mitigation Measures Proposed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Landscape and Visual</td>
<td>Light spill from site works.</td>
<td>Any new lighting to be installed on site should be directional lighting.</td>
</tr>
</tbody>
</table>
| Noise and Vibration                | Local residential properties, recreational areas & industrial receptors. General changes to noise directly from the site and associated changes in traffic. | As appropriate:  
  - Use of equipment fitted with effective silencers where practicable.  
  - Appointment of a site contact to whom complaints/queries about construction/demolition activity can be directed – any complaints to be investigated and action taken where appropriate.  
  - Local residents informed of exceptional activities.  
  - No potentially significant external working outside of normal working hours without prior agreement with the local authority.  
  - All construction activity to be undertaken in accordance with good practice as described by British Standard 5228:1997.  
  - Use of equipment fitted with effective silencers where practicable. |
| Noise & vibration caused by explosive demolition (if used). | Use of good blasting practice and warning members of the public and the operators of Sizewell B in advance of demolition activities using explosives. |                                                                                                                                                                                                                           |
| Socio-economic                     | Long term loss of Direct Employment.                                                                       | Magnox Ltd will encourage its contractors to make use of local labour, equipment and services as far as practicable.  
  - Magnox Ltd will attempt to redeploy affected staff, provide opportunities for early retirement & support staff retraining/reskilling. |                                                                                                                                                                                                                           |
| Surface Water Quality and Drainage | Changes in North Sea water quality due to the potential release of turbid and/or contaminated water from decommissioning activities on the site. | Where necessary:  
  - Wetting down (e.g. excavation or construction/demolition areas) to prevent windblown spread of dust into locations where subsequent washing into surface water drains would be likely, and appropriate management of wastewater arising.  
  - On site roads to be regularly kept free from mud/dust deposits, including the use of recirculating water wheel washers and road cleaners as appropriate.  
  - Sheet or seeding of any stockpiles of soil or potentially contaminating materials.  
  - Careful design and siting of spoil mounds as necessary to manage run-off, including use of low walls around such mounds if appropriate.  
  - See also measures under ‘Geology, Hydrogeology and Soils’. |
| Changes in North Sea water quality due to minor spills and leaks of non-radioactive substances, if they occurred. | Careful siting of concrete plant and fuel/chemical handling facilities according to EA Pollution Prevention Guidance (PPG) Notes 5 and 6.  
  - Bunding of chemical and fuel storage according to PPG 2, PPG 5 and PPG 6.  
  - Appropriate protocols for chemicals and fuel handling in line with EA PPG 6, with trained staff only to operate facilities.  
  - Emergency/spill response planning according to PPG 21; including spill kits kept on site and trained staff. |                                                                                                                                                                                                                           |
### Care & Maintenance Preparations Phase

**Mitigation measures already identified (Condition 3a) - continued**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Nature of impact</th>
<th>Mitigation Measures Proposed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traffic and Transport</td>
<td>Impacts on safety on roads with an accident record worse than average (King George’s Avenue, Leiston).</td>
<td>No specific mitigation is possible because of the absence of specific accident clusters and causes. However, a Travel Plan is incorporated into the site Management Control Procedure for Environmental Management⁴. This encourages, among other actions, communal transport and car sharing. Personnel are encouraged to avoid the centre of Leiston if possible. Heavy Goods Vehicles are to use B1122 Lovers Lane-C228 route between the A12 and Site as appropriate.</td>
</tr>
<tr>
<td></td>
<td>Impacts on safety etc. due to mud on roads.</td>
<td>Wheel washing of lorries as necessary.</td>
</tr>
</tbody>
</table>

⁴The Environmental Management Control Procedure has been withdrawn and the Travel Plan has been incorporated into a Section Working Instruction.

### Care & Maintenance Phase

**Mitigation measures already identified (Condition 3a)**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Nature of impact</th>
<th>Mitigation Measures Proposed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Landscape and Visual</td>
<td>During Care and Maintenance no significant works are planned with the possible exception of recladding the reactor buildings (should this be required). It is anticipated that the reactors would be reclad in a similar material to that used at the start of Care and Maintenance hence the visual impact will remain unchanged.</td>
<td>No mitigation measures are required.</td>
</tr>
</tbody>
</table>

No other significant adverse environmental impacts were identified during Care & Maintenance.
<table>
<thead>
<tr>
<th>Topic</th>
<th>Nature of impact</th>
<th>Mitigation Measures Proposed</th>
</tr>
</thead>
</table>
| **Air Quality and Dust**          | Increase in site dust emissions due to construction, demolition and waste/materials handling operations etc. which could impact on residential and industrial receptors. | As appropriate:  
  - On site roads to be regularly cleaned of mud/dust deposits, including the use of recirculating water wheel washers and road cleaners as appropriate; and sheeting of vehicles carrying potentially dusty loads.  
  - Minimisation of unnecessary material and waste handling as far as practicable.  
  - Use of water sprays for external demolition activities as appropriate.  
  - Use of water sprays during outside infill operations.  
  - Avoidance of vehicular use on unsurfaced (soft) ground where possible and limits on vehicle speeds on such surfaces where it can not be avoided.  
  - Use of water sprays during particularly windy or dry conditions.  
  - Use of water sprays to maintain damp surfaces during dry and windy weather (e.g. soil stockpiles, demolition rubble); or sheeting or seeding of surfaces of stockpiles of soil or other dusty materials.  
  - Sheetin or seeding of surfaces and/or use of wind fences as appropriate.  
  - Sheetin or seeding of surfaces and/or use of wind fences as appropriate.  
  - Covering of containers and/or use of wind fences as appropriate.                                                                                                                                                                                                                           |
| Dust emissions due to any use of explosives. | Such activities will not be carried out under particularly dry or windy conditions, and local residents and Sizewell B will be informed in advance.                                                                                                                                                                                                                          |
| Increase in dust at residential properties along traffic routes due to soiled vehicles or vehicles carrying dusty loads. | As appropriate:  
  - Sheetin of lorries carrying dusty loads.  
  - Provision of wheel washing for, as a minimum, heavy goods vehicles on leaving the site.                                                                                                                                                                                                                           |
| **Archaeology and Cultural Heritage** | No significant adverse environmental impacts identified arising from decommissioning activities.                                                                                                                                                                                                                                                                         |
| **Ecology**                       | Loss of nest sites for Black Redstarts.                                           | Provision of additional, appropriately designed nest boxes prior to the commencement of site works.                                                                                                                                                                                                                                                                   |
| Loss of foraging habitat for Black Redstarts. | Minimisation of habitat loss, where reasonably practicable. At any one time parts of the site will provide potentially suitable foraging habitat for Black Redstarts.                                                                                                                                                                                                 |
| Incidental mortality/noise (including explosions) and visual disturbance of Black Redstarts. | Employee awareness programme and experienced individual tasked with identifying active nest sites.                                                                                                                                                                                                                                                                   |
| Incidental mortality of Reptiles. | Reptile proof fencing to be used to prevent reptiles from moving into working areas. Reptile proof fencing should be installed prior to works commencing, allowing a period of time for reptiles to move out of the working area.                                                                                                                                                                                                 |
## Final Site Clearance Phase

Mitigation measures already identified (Condition 3a) - continued

<table>
<thead>
<tr>
<th>Topic</th>
<th>Nature of impact</th>
<th>Mitigation Measures Proposed</th>
</tr>
</thead>
</table>
| Geology, Hydrogeology and Soils | Inadvertent or uncontrolled disturbance or spreading of existing contaminated soils, including movement by windblown dust, entrainment in runoff, attachment to vehicles and/or inappropriate soil handling operations. | • Desk studies and site investigation, if necessary, before works commence in order to determine the presence or absence of contamination, so that appropriate working practices can be adopted from the outset.  
• Controlled access to or from known or potentially contaminated working areas as appropriate.  
• Use of recirculating wheel washers on lorries leaving site as appropriate.  
• See also measures under ‘Inadvertent contamination of soils and/or groundwater arising from temporary storage of contaminated soils, wastes or materials’.  
• See also control measures under ‘Air Quality and Dust’. |
| Mobilisation of existing contamination by direct rainwater infiltration due to changes in ground coverage. | Investigation of contaminated soils prior to removal of hard-standings or buildings/foundations (possibly by desk study alone if appropriate), with prior remediation if necessary. |
| Mobilisation of existing contamination by direct rainwater infiltration due to the creation of temporary open excavations. | • Desk studies and site investigation, if necessary, before works commence in order to determine the presence or absence of contamination, so that appropriate working practices can be adopted from the outset.  
• Excavation dewatering, if necessary, with monitoring and appropriate management/disposal of any waters arising.  
• Tenting of exposed areas or excavations, if necessary. |
| The potential contamination of ground and groundwater due to contaminated water entering those external drains that run to soakaways. | • See mitigation measures required to prevent contamination of soils and/or groundwater; and spills and leaks. |
| Creation of new contaminant migration pathways (e.g. due to the creation of boreholes, piles or excavations connecting previously unconnected geological strata). | • Compliance with British Standard 5930 (Code of Practice for Site Investigations) and BS 10175 (Investigation of Potentially Contaminated Sites – Code of Practice).  
• Compliance with EA Technical Report P5-065/TR (Technical Aspects of Site Investigation).  
• Production of risk assessments, method statements and contingency plans. |
## Final Site Clearance Phase

### Mitigation measures already identified (Condition 3a) - continued

<table>
<thead>
<tr>
<th>Topic</th>
<th>Nature of impact</th>
<th>Mitigation Measures Proposed</th>
</tr>
</thead>
</table>
| **Geology, Hydrogeology and Soils** | Inadvertent contamination of soils and/or groundwater arising from temporary storage of contaminated soils, wastes or materials. | - Sampling and testing of soils, wastes and materials prior to storage as appropriate.  
- Segregation as appropriate.  
- Use of containment (e.g. membranes) to eliminate cross-contamination, as appropriate.  
- Management of rainwater run-off from storage areas for contaminated or potentially contaminated soil, wastes and materials. |
| | Inadvertent contamination of soils and/or groundwater arising from inappropriate use of contaminated soils, wastes or materials as infill materials. | - Sampling and testing of potentially contaminated soils, wastes and materials prior to use as appropriate.  
- Authorised disposal of unsuitable soils, wastes and materials. |
| | Changes in soil and groundwater quality due to spills or leaks of non-radioactive substances. | - Bunding of chemical and fuel storage according to EA Pollution Prevention Guidance (PPG) Notes 2 and 6.  
- Appropriate protocols for chemicals and fuel handling in line with PPG 6, with trained staff only to operate facilities.  
- Emergency spill response planning according to PPG 21, including spill kits kept on site and trained staff available. |
| | Derogation of existing groundwater abstractions due to on site dewatering operations, if any. | If necessary, placement of recharge barriers as appropriate (i.e. inject back into the ground an equivalent amount of water to that extracted). |
| | Changes in groundwater flow/water table regime beneath nearby sites designated for their ecological value due to on site dewatering operations, if any. | If necessary:  
- Placement of physical barriers (e.g. sheet piles) and recharge barriers appropriate (i.e. injection back into the ground an equivalent amount of water to that extracted).  
- Provision of compensation flows directly into the feature affected. |
| **Landscape and Visual** | Light spill. | Any new lighting to be installed on site should be directional lighting. |
4.2 Options where mitigation may be required but options cannot yet be selected (Condition 3b)

<table>
<thead>
<tr>
<th>Environmental Impact</th>
<th>Mitigation Measures under consideration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Historic value</td>
<td></td>
</tr>
<tr>
<td>Historical value of Sizewell A</td>
<td>A strategy to preserve the historical and industrial value of all Magnox reactor sites, of which Sizewell A is one, is being considered. Magnox Ltd will provide supporting information to the Nuclear Decommissioning Authority as required to assist in making any decisions. Potential options include the following:</td>
</tr>
<tr>
<td></td>
<td>• Conducting a Royal Commission of the Historical Monuments of England (RCHME) level 1 survey.</td>
</tr>
<tr>
<td></td>
<td>• Undertaking a comprehensive cataloguing of existing photographs and supplementing these with new photographs where appropriate.</td>
</tr>
<tr>
<td></td>
<td>• Retaining operational records and other documents of interest.</td>
</tr>
<tr>
<td></td>
<td>• Displaying items of plant of interest, e.g. panels from a control room, in a visitors centre and/or museum.</td>
</tr>
</tbody>
</table>

4.3 Activities where mitigation may be required but it is not yet possible to identify possible mitigation measures (Condition 3c)

<table>
<thead>
<tr>
<th>Environmental Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Currently no such activities have been identified.</td>
</tr>
</tbody>
</table>
5. Implementation of the Environmental Management Plan

It is a requirement of the conditions attached to the consent (see Appendix A), to implement the mitigation measures and to describe their effectiveness. This section covers the measures (as identified in section 4) that have been implemented (with details of some of the projects implemented during 2017/18) and describes how the effectiveness of these measures has been assessed.

Note: Not all mitigation measures were required during 2017/18 due to the types of activities being undertaken and the lack of potential for a significant adverse impact.

Process for Implementation of Mitigation Measures

Company and Site Management Control Procedures (see Appendix B) ensure that decommissioning activities are carried out in accordance with the Environmental Management Plan. All changes to the configuration of plant and systems are assessed, during the proposal stage, against the requirements of the Environmental Management Plan and, where appropriate, mitigation measures are put in place to prevent impacts identified. This is a part of the integrated management system on site which is certified to ISO 9001, ISO 14001 and OHSAS 18001. In addition, where there is the potential for an activity to produce significant discharges or disposals, either radioactive or non-radioactive, the site undertakes Best Available Techniques (BAT) studies in accordance with the Company Process S-391 (Options Assessment for Radioactive Substances Legislation BAT/BPM Compliance).

Process for Determining Effectiveness of Mitigation Measures

The site aims to continually monitor the effectiveness of mitigation measures over time. Where mitigation measures are not sufficiently effective, they will be reviewed and amended as necessary to ensure success in minimising significant adverse 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 need for this form of monitoring is determined on an individual basis for each project based on the anticipated activities and the potential for significant adverse impact.

2) Visual Evidence

Inspections of the work area both prior to, during and after project works are used to assess the requirements for mitigation, on going suitability of the mitigations and overall success in minimising significant adverse impacts. Where it is deemed appropriate, photographic evidence can be gathered to support the assessment of effectiveness.

Routine site tours by suitably qualified individuals are used to identify areas of success and areas for improvement. These tours are used to monitor the effectiveness of mitigations on environmental receptors.

Ecology surveys have been completed to look for evidence of wildlife using the site to feed or nest prior to work activities or demolition taking place.

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

This 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 or pose a threat to the environment. As part of this system, events are investigated and, where necessary, remedial actions are put in place.

Figure 3: Cleared Off-shore Structure
Examples of Work Completed Requiring Mitigation Measures

Work completed between April 2017 and March 2018 included major demolition works of redundant buildings and facilities. Hazard reduction and maintenance work has continued in the remaining areas, for example the Reactor Building. The Ponds Programme completed their preparatory work and are nearing completion of the waste processing in the cooling pond. This will be followed by a campaign of waste recovery and pond water draining. Waste Programmes continue with preparations to provide facilities to enable waste to be recovered, processed and dispatched.

This work has required a number of assessments to be made both through the change control and Environmental Impact Assessment processes. This has resulted in a variety of the mitigation measures stated in the Environmental Statement being implemented.

Demolition activities involved a mixture of concrete and brick built buildings, prefabricated buildings, and metal structures. For example, the Administration Building, Reservoirs, and Cooling Water Pumphouse Crane. Demolition material was sorted and segregated with suitable material being used to infill voids or being stockpiled for use in voids as they become available in the future.

Investigations, studies and testing were completed to ascertain the state of the ground, groundwater, presence of wildlife, and baseline environmental conditions prior to demolition. A Material Management Plan and associated Conceptual Site Model and Risk Assessment was produced to support the re-use of demolition material. Controls and mitigations were implemented for air quality and dust by using water suppression, wind fences, and sheeting skips and containers. Roads were also cleaned and assurance monitoring for noise, dust and surface water discharge pH was conducted.

The run-off from the dust suppression and rainfall was managed to protect drains from receiving high pH leachate. Equipment and stockpiles were sited considering draining and adequate protection was provided.

Maintenance work on the Off-shore Structures was completed whereby all of the plant and non-structural metalwork was removed. An environmental impact assessment was conducted and a Marine Management Organisation licence obtained. Mitigation measures were implemented for the protection of the marine environment and local wildlife.

No organisational restructuring has taken place within the company during the last year. The socio-economic impact of any changes will continue to be managed in accordance with the mitigation measures to support personnel to redeploy, reskill or retire.

Investigations, studies and testing were completed to ascertain the state of the ground, groundwater, presence of wildlife, and baseline environmental conditions prior to demolition. A Material Management Plan and associated Conceptual Site Model and Risk Assessment was produced to support the re-use of demolition material. Controls and mitigations were implemented for air quality and dust by using water suppression, wind fences, and sheeting skips and containers. Roads were also cleaned and assurance monitoring for noise, dust and surface water discharge pH was conducted.

The run-off from the dust suppression and rainfall was managed to protect drains from receiving high pH leachate. Equipment and stockpiles were sited considering draining and adequate protection was provided.

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No organisational restructuring has taken place within the company during the last year. The socio-economic impact of any changes will continue to be managed in accordance with the mitigation measures to support personnel to redeploy, reskill or retire.

Figure 4: Administration Block Demolition

Figure 5: CO₂ Plant Demolition—Before and After

Other measures were implemented to mitigate against the potential impacts from plant modifications made throughout the year. Maintenance, procedures and training, as well as emergency response planning, provides the basis of mitigation measures employed. The effectiveness of these measures can be ascertained from spoil samples, groundwater monitoring results, event reporting analysis, environmental impact scoring and various site inspections.

In recent years breeding pairs of Black Redstarts have been identified in and around the site with other pairs nesting on Sizewell B. This provided evidence that mitigation measures implemented were effective. Those measures include provision of nest boxes, minimisation of habitat loss, and implementation of an employee awareness programme.

The Site continues to monitor the coastal area adjacent to the site boundary through the Shoreline Users Group. There have not been any storm or geomorphological events during the last year which were significant enough to damage the site’s coastal defences.
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. Sizewell 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 EMP

In addition to the submission of this EMP to the ONR, Magnox Ltd will make the document publicly available via the Magnox Website.

This EMP can also be viewed at the following locations:
- Leiston Library, Old Post Office Square, Main Street, IP16 4ER.
- Aldeburgh Library, Victoria Road, Aldeburgh, IP15 5EG.
- Saxmundham Library, County Offices, Street Farm Road, Saxmundham, IP17 1AL.
- Southwold Library, North Green, Southwold, IP18 6AT.
- Woodbridge Library, New Street, Woodbridge, IP12 1DT.
- Framlingham Library, The Old Court House, Bridge Street, Framlingham, IP13 9BA.
- Wickham Market Library, Resource Centre, Chapel Lane, Wickham Market, IP13 OSD.

8. Definitions

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
<th>Acronym</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>AOD</td>
<td>Above Ordinance Datum</td>
<td>NNR</td>
<td>National Nature Reserve</td>
</tr>
<tr>
<td>AONB</td>
<td>Area of Outstanding Natural Beauty</td>
<td>OHSAS 18001</td>
<td>Accreditation system for Occupational Health and Safety Management Systems</td>
</tr>
<tr>
<td>BAP</td>
<td>Biodiversity Action Plan</td>
<td>ONR</td>
<td>Office for Nuclear Regulation</td>
</tr>
<tr>
<td>EA</td>
<td>Environment Agency</td>
<td>RIGS</td>
<td>Regionally Important Geological Sites</td>
</tr>
<tr>
<td>EMP</td>
<td>Environmental Management Plan</td>
<td>SAC</td>
<td>Special Area of Conservation</td>
</tr>
<tr>
<td>FED</td>
<td>Fuel Element Debris</td>
<td>SLA</td>
<td>Special Landscape Areas</td>
</tr>
<tr>
<td>HSE</td>
<td>Health and Safety Executive</td>
<td>SPA</td>
<td>Special Protection Area</td>
</tr>
<tr>
<td>ISO 9001</td>
<td>Accreditation system for Quality Assurance</td>
<td>SSSI</td>
<td>Site of Special Scientific Interest</td>
</tr>
<tr>
<td>ISO 14001</td>
<td>Accreditation system for Environmental Management Systems</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX A

Letter Providing Consent to Decommission and Attached Conditions

Decommissioning Project Consent No.1

NUCLEAR REACTORS (ENVIRONMENTAL IMPACT ASSESSMENT FOR DECOMMISSIONING) REGULATIONS 1999

CONSENT

granted under regulation 4(b)
in accordance with regulation 8(3)
with conditions attached under regulation 8(4)

SIZEWELL A POWER STATION

The Health and Safety Executive, for the purposes of regulation 4(b) in accordance with regulation 8 (3), hereby grants consent for carrying out the project applied for under regulation 4(a), in particular, to remove all buildings except the reactor buildings, alter the reactor buildings for a period of deferment, retrieve and package operational intermediate level waste, and store the intermediate level waste until it can be removed from site, and clear the site, subject to the conditions under regulation 8 (4) attached.

Dated:
For and on behalf of the
Health and Safety Executive
Signed

Dr S. L. Creswell
A person authorised to
act in that behalf
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)

SIZEWELL A POWER STATION

Condition 1
The project shall commence before the expiration of five 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 evidence to verify information in the Environmental Statement, provided under regulation 10(9), the environmental management plan shall:
(a) list the mitigation measures that are already identified in the Environmental Statement and evidence submitted to verify information in the Environmental Statement;
(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
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:
For and on behalf of the
Health and Safety Executive
Signed

Dr S. L. Creswell
A person authorised to act in that behalf
### APPENDIX B

Site procedures for minimisation of 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 subsection 5.3.

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>CONSIDER POTENTIAL FOR:</th>
<th>NO</th>
<th>YES</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.2.1 Decommissioning Baseline</td>
<td>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.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.2.2 Management</td>
<td>Does the proposal challenge compliance with the EIADR Regulations including adequacy of mitigation measures proposed?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.2.3 Discharges &amp; Waste</td>
<td>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)?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.2.4 Discharges &amp; Waste</td>
<td>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)?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.2.5 Environmental Impacts</td>
<td>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</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5.2.6 If all the answers are ‘NO’ then the proposal is Category E3.

If ‘YES’ is answered to any of the 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:

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>E1</td>
<td></td>
</tr>
<tr>
<td>E2</td>
<td></td>
</tr>
<tr>
<td>E3</td>
<td></td>
</tr>
</tbody>
</table>

Name: [Environment SQEP]

Signature: ___________________________  Date: ___________________________
APPENDIX B — Continued

Site procedures for minimisation of 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 OVERALL ENVIRONMENTAL CATEGORY
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.

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.

RECOMMENDED ENVIRONMENTAL CATEGORY:

<table>
<thead>
<tr>
<th>E1 □</th>
<th>E2 □</th>
<th>E3 □</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name:.........................</td>
<td>Signature: ..................</td>
<td>Date: ..................</td>
</tr>
</tbody>
</table>

*Environment SQEP*

For category E1 modifications, two additional signatures are required:

1) Confirm awareness of the modification proposal.

| Name:......................... | Signature: .................. | Date: .................. |

*EHSS&Q Manager*

2) Confirm that the modification proposal has been reviewed by Head of Profession – Environment, and that comments / recommendations have been addressed.

| Name:......................... | Signature: .................. | Date: .................. |

*NRE*
APPENDIX C

Stakeholder Engagement

Whilst decommissioning represents the next phase in the lifecycle of the site, Magnox Ltd. remains committed to engaging with stakeholders at all phases in the process. Regular meetings were held with the Local Community Liaison Council and this process is continuing with its successor body, the Sizewell A and B Stakeholder Group. The organisations listed in Figure 6 were also involved in the public consultation process for the Environmental Statement.

As well as regular meetings with stakeholders, where appropriate, other interested parties are kept informed of specific decommissioning activities. Some examples are shown in Figure 7.

Figure 6. Local Stakeholders
- Suffolk Coastal District Council.
- Suffolk County Council.
- Environment Agency.
- Natural England.
- RSPB.
- Suffolk Wildlife Trust.

Figure 7. Examples of Activity Specific Stakeholders
- Informing local residents of any short-term activities that may cause a noise nuisance.
- Notify Natural England of work on the Reservoir Demolition and Sewage Plant subsidence repair for work adjacent to Sizewell Marshes SSSI.
- Consultation with the Environment Agency of demolition material re-use.

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 Sizewell A.
APPENDIX D

Information on site working and environmental performance

Site Management and Decommissioning

General Site Management

Hours of Work

Current normal working hours are between 07:30 and 17:00 hours, Monday to Friday. Most decommissioning work on site will also be undertaken during these hours under a single shift working arrangement, but this may alter for certain activities. For example, from time to time the working day may be extended in order to complete specific items of work safely, and some night-time working may be required to accommodate certain activities such as concrete pouring. Seven days a week, 24 hours a day shift working may be necessary for retrieval of waste and for subsequent waste packaging operations.

Lighting

The existing night time illumination of the site consists mainly of internal lights within the transparently clad parts of the reactor building, together with ‘street’ lights supplementing four elevated lighting stands.

During Care & Maintenance Preparations and Final Site Clearance, increased lighting may be necessary at times. Suitable lighting will be installed to assist in the on-site works. This would only normally be at the start and end of the working day during the winter months at the discretion of the relevant Site Supervisor. The existing security lighting will be retained.

During Care & Maintenance it is expected that there will be occasional low level ‘street’ lighting on service roads, provided for staff attending site during the hours of darkness, and lighting activated by site security systems.

Transport

Vehicle movements to and from Sizewell A will be subject to the provisions of a Travel Plan.

Decommissioning Methods

Conventional Area Decommissioning

Conventional plant and buildings will be de-planted and demolished using standard construction industry methods. The exact methods to be employed will be detailed in method statements for individual projects.

The interiors of buildings will be first de-planted and decontaminated as necessary prior to demolition of the buildings themselves. To facilitate this, large or heavy plant/ equipment may be cut or split into components or sub-component parts prior to their removal. It is expected that after de-planting etc. is complete, demolition will be carried out using conventional methods.

All buildings will be demolished and structures removed to ground or slab level. Once removed, the footprints of buildings will be gravelled over if required. Any remaining below ground building structures (e.g. basements will be punctured to prevent ‘ponding’ (the accumulation of water)). As far as is reasonably practicable all suitable demolition material will be retained on site to be used for the infill of deep voids, specifically those of the Turbine Hall basement and the Cooling Water Pumphouse.

The only existing road to be retained into Care & Maintenance will be the road that enters the main gate, turns right towards the Reactor Building, passes round the inner fence before returning to the main gate via the same approach. Otherwise, most existing hard-standings, paths and roads will be removed. However, existing car parks will be retained into the Care & Maintenance period.

Demolition of Radioactive Facilities

Radioactive plant and equipment in the Reactor Building will be decontaminated and dismantled, in-situ where practicable and recycled where possible. Examples of these decontamination processes are shown in Figure 8. Contamination control provisions will be applied (e.g. work will be done within temporary enclosures) and working procedures will take account of the requirement to minimise workers’ exposure to radiation to As Low As Reasonably Practicable (ALARP). Following decontamination and de-planting, buildings scheduled for demolition during Care & Maintenance Preparations will be demolished, using conventional techniques. Monitoring checks will be made on the buildings as demolition proceeds and on the resulting demolished materials prior to re-use or disposal.

Work is ongoing to repurpose parts of the workshop and stores building into a Low Level Waste Loading Facility which will enable improved efficiency in segregating and loading waste for off site disposal.

Figure 8: Examples of Decontamination Techniques

- **Chemical decontamination** involves the use of chemicals to remove surface contamination.
- **Scabbling** is a mechanical technique which involves the physical removal of surface contamination, predominantly on concrete.
- **Shot blasting** uses high velocity shot to remove surface contamination.
- **Water jetting** involves the use of a pressurised water jet to remove surface contamination.
- **Wipe down** where contamination is removed by ‘wiping’; specialist equipment and materials are usually required.
Waste Management

Redundant plant and materials continue to be managed to ensure compliance with Best Available Techniques and hazard reduction on site. For example cables running underground between redundant plant have been drained of oil and capped ready for removal.

Intermediate Level Radioactive Waste (ILW)

During the Care and Maintenance Preparations Phase of the Site’s Lifetime Plan, a number of ILW streams which arose during the operation of the site will be processed. These wastes will either be managed to enable them to be treated as LLW or out of scope. Alternatively they will be packaged for storage at Bradwell or Hinkley Point A Sites. Prior to the facilities being available to package ILW for transport, temporary buffer storage areas are being established to safely and compliantly manage the wastes.

Low Level Radioactive Waste (LLW)

LLW arising from operational and decommissioning activities is processed and packaged on-site before being transferred to a holder of an Environmental Permit for further treatment or disposal. Aqueous radioactive effluent requiring disposal is transferred to the Active Effluent Treatment Plant (AETP) for processing and disposal to sea.

Out of Scope Waste

Out of scope wastes are those generated which have been assessed as being ‘out of the scope’ of the requirements of the Environmental Permitting Regulations for radioactive material. These wastes are processed and packaged on-site before being transferred to a holder of an Environmental Permit for further treatment or disposal as Controlled Waste.

Non-radioactive Hazardous Wastes

Disposal of hazardous waste is via authorised contractors who hold the appropriate Waste Carrier’s Registration and Environmental Permits or exemptions for the waste management activities to be undertaken. These are checked for validity before any disposal occurs. The specific contractor used will depend on the type of waste requiring disposal. All records are auditable and are checked regularly.

Asbestos

The site continues to strategically manage asbestos hazards by assessing and prioritising work to encapsulate or remove asbestos. This has included work to collate historic asbestos records as well as physical work to weatherproof buildings and conduct removal in areas around the site.

Insulation containing asbestos is removed under stringent safety conditions using specialist personnel working in tented areas which are subject to airlocks and a negative air pressure system. All work is carried out in strict accordance with The Control of Asbestos Regulations 2012. The tents fully enclose and seal the work areas and the entire volume is smoke tested to ensure its integrity before asbestos removal commences. Prior to removal, all asbestos lagging is injected with a water solution to reduce the number of fibres released into the tented enclosure. Respirators and clothing change facilities are required for all personnel working in the controlled areas.

Non-radioactive asbestos disposal is via licensed contractors to approved disposal sites. Carrier’s Registrations and Environmental Permits for the waste management activities to be undertaken are checked before any disposal occurs. Under the contract conditions, the contractor is required to meet the nationally set controls for disposal of the waste through approved landfill sites.
APPENDIX D — Continued

Other Wastes

Non-radioactive waste materials have arisen throughout the operating life of Sizewell A. In general, the management of waste at Sizewell A aims to minimise the need to use landfill by reducing waste volumes wherever possible through adherence to the hierarchy of waste management (i.e. reduce, reuse, recycle) in line with the Waste (England and Wales) Regulations 2011, as amended. Sizewell A follows the Duty of Care principles for all waste arisings and where waste is transferred, it is accompanied by a transfer or consignment note (as applicable) and a full written description of the wastes.

Scrap metal (e.g. steel and copper from wiring), plastic, cardboard, paper, and glass are sent to an appropriate contractor for recycling. If it is not practicable to reuse or recycle any scrap materials they will be disposed of via approved routes in accordance with the Duty of Care principles.

Demolition materials have been re-used under the CL:AIRE Protocol to infill voids around the site. Excess material is being stockpiled in anticipation of additional voids becoming available (e.g. the Turbine Hall void).

Non-radioactive effluent is disposed of under the Environmental Permitting Regulations, Environmental Permit (formerly a discharge consent issued under the Water Resources Act 1991) via the site cooling water outfall to the North Sea. Discharges under this permit include rain water and secondary treated effluent from the A and B Site Sewage Treatment Plant.

Radioactive Discharges and Emissions during Care & Maintenance Preparations

Radioactive discharges to air and water from Sizewell A during decommissioning will continue to be made in accordance with the permit granted by the Environment Agency under the provisions of the Environmental Permitting Regulations 2016 (as amended). Annual gaseous and aqueous discharges have reduced, although there may be some temporary peaks resulting from certain hazard reduction activities in the future.

Environmental Performance

During the year the site has assisted the Company in retaining accreditation to ISO 14001 through continued maintenance of the environmental management system.

The site continues to work on minimising the use of resources including electricity, town main water and diesel use. In the last year there has been a reduction in electricity usage of 9% compared to the previous years usage figures. With the removal from service of the site steam boiler in 2015, fuel oil use on site has reduced to virtually nil. Other utility savings are largely due to changes on the site which include; demolition of buildings, isolations making areas ‘cold and dark’, reduced demand through system rationalisation, demineralised water management, and savings through good behaviours demonstrated by personnel.

The past year has seen substantial demolition work taking place on site with a number of buildings and areas being de-planted. Waste retrieval enabling works are being completed to allow the safe and compliant retrieval, storage and disposal of LLW and ILW streams. The Cooling Pond decommissioning is also well under way with waste removal and draining planned to continue through 2018 and into 2019. There have not been any significant environmental events and all plant tours and monitoring of mitigations have demonstrated their effectiveness.

Wildlife observed on the site has continued to be diverse. The Kittiwake population on the Off-shore Structures appears to remain at a similar level. An environmental impact assessment and screening assessment for EIADR were produced to assess the significance of the de-planting work on the Off-shore Structures. The assessments concluded that with adequate mitigation, the works would not cause significant adverse impacts.

The Site has continued to safely and compliantly deliver work during the past year which has helped to reduce or remove environmental hazards in line with objectives and targets. This included conventional demolition, ongoing asbestos remediation, and preparations for significant waste retrievals such as establishing buffer storage, and using divers to size reduce, segregate and consolidate waste streams in the cooling ponds. New active ventilation plants have also been installed which incorporate sampling equipment to monitor discharges to the environment.

Routine groundwater monitoring continues and has not shown any areas of concern. Also, excavations and de-planting did not reveal any areas of concern with regards to ground contamination.

During 2015, the Environmental Monitoring Programme for Sizewell A was successfully handed over to EDF. Regular oversight is maintained and the results reported to the Environment Agency. Environmental Monitoring has not shown any elevated readings in the environment.

Magnox remains committed to achieving safe and compliant work delivery whilst protecting the environment.

Figure 11: Sizewell A from the south (Sizewell B in the background)
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