



Sizewell A Site

Strategic Environmental Assessment Site Specific Baseline

September 2014



FOREWORD

This document has been prepared to support the NDA's Strategic Environmental Assessment of its decommissioning strategy for the 10 Magnox Sites. This document contains baseline environmental information and other relevant environmental data.

STRATEGIC ENVIRONMENTAL ASSESSMENT

Site Specific Baseline - September 2014

Sizewell A Site
Sizewell
Leiston
Suffolk
IP16 4UE

Sizewell A Site

Sizewell A Site (hereafter referred to as the Site) is a twin reactor Magnox station undergoing decommissioning, and is located close to the town of Leiston in the Suffolk Coastal District of the county of Suffolk, East Anglia. It is situated on the North Sea coast, from which it drew cooling water supplies during its operational phase, and is immediately adjacent to EDF's Sizewell B Power Station. This site covers an area of 10 hectares¹. The following describes the key dates for the Site:

- Construction of the site commenced in 1960 and electricity was first supplied to the grid in 1966.¹
- The site ceased electricity generation in 2006 after 40 years of operation.¹
- Defuelling of the reactors was completed in 2014.¹
- The Care and Maintenance Preparations (C&MP) phase of the decommissioning process is scheduled to be completed in 2027 at which point the site will enter the Care and Maintenance (C&M) phase.²
- Final Site Clearance (FSC) is scheduled to commence at the end of the C&M phase. All remaining structures on the site will be cleared by 2098.²

¹ *Magnox Ltd (2013) Sizewell A.* <http://www.magnoxsites.co.uk/site/sizewell-a/>

² *Nuclear Decommissioning Authority (NDA) Business Plan, 2012-2015*

Site End State Assumption

The planned end state for Sizewell A Site is defined in the NDA Strategy Document 2011. This states: *'Radioactive and non-radioactive contamination will be reduced to meet the requirements of the relevant regulatory regime for the next planned use of the site and the current use of adjacent land. Where the next planned use no longer requires a nuclear site licence, radioactive contamination will be reduced to meet the criteria for delicensing, with any remaining radioactive substances being subject to the relevant environmental permitting regime. The physical state of designated land will be made suitable for the next planned use of the site; structures and infrastructure will be made safe or removed where necessary, having first explored opportunities for their re-use.'*

Current Environment Baseline

Table 1: Baseline Data for all SEA Objectives for Sizewell A Site

SEA Objective	Environmental Baseline Data	References
<p>Air Quality & Dust</p>	<p><u>Radioactive Discharges</u></p> <ul style="list-style-type: none"> • Aerial discharges of radioactivity have reduced since the cessation of generation. The reactor cores at the site are enclosed within Steel Pressure Vessels (SPVs), which are in turn contained within concrete structures ('bioshields') designed to protect site personnel from radiation originating from within the cores. During operations discharges of aerial activity resulted from ventilation of the bioshield voids, which released gaseous activation products when the reactors were under load. • Periodic venting of reactor coolant gas was carried out during the operational phase. This has ceased since the end of generation. • Nuclear operations including waste retrieval which are being undertaken as part of the decommissioning works result in minor but regular aerial discharges of radioactivity. <p><u>Conventional Discharges</u></p> <ul style="list-style-type: none"> • Vehicles and diesel boilers are employed on the site, which are sources of air quality contaminants including NO_x (oxides of nitrogen), SO_x (oxides of sulphur) and PM₁₀ (particulate with a diameter <10µm). These sources run for a significant proportion of the year but due to the rural nature of the site average levels of these pollutants are likely to be low. • Discharges from these sources will likely remain steady throughout the C&MP phase, although the boilers will likely be removed from service once the pilecap has been deplanted. • Dust is currently, and will in future, be generated from construction and demolition activities undertaken on the site as part of C&MP. Mitigation of this dust is undertaken in all instances. • The location of the site is not currently designated an Air Quality Management Area (AQMA).¹ 	<p>1. DEFRA (2014) Air Quality, http://aqma.defra.gov.uk/aqma/list.php</p>

<p>Global Climate Change and Energy</p>	<ul style="list-style-type: none">• Throughout its lifetime the site has drawn power from the National Grid to satisfy domestic power needs (heavy plant items such as the gas circulators and cooling water pumps were driven by power derived directly from the station's output). 85-90% of the site's supply is currently sourced directly from the National Grid and the remainder is supplied from the grid via Sizewell B's infrastructure. The use of the grid-sourced energy has resulted in indirect CO₂ emissions, due to the mixed generation used in the UK.• In addition to grid supplies, the site has items of plant for the provision of back-up power, these are fossil fuel powered. At the site this auxiliary equipment consists of 2 diesel generators; these machines are not in constant use, instead they are there for emergencies, but are regularly run for testing purposes. There is also the facility to install temporary diesel generators in key areas of site to provide power in the event of a loss of grid supplies.• The 2 steam boilers at site are also significant consumers of diesel fuel / sources of CO₂, as these are run 9 months a year and are likely to be available until the pilecap is deplanted.• A number of vehicles are based at the site, which are either used within the site footprint (e.g. fire tenders), or move from the site to further afield (e.g. vehicles used in carrying out District Survey work), and have associated carbon emissions. In addition there are indirect carbon emissions originating from the use of hire vehicles by site personnel.• Magnox Ltd. has registered under the Carbon Reduction Commitment (CRC) and also has a company-wide Energy Efficiency Policy. Both of these schemes are currently being implemented on a site by site basis, with the aim of minimising greenhouse gas emissions across the company. <p><u>Climate Change and Flooding</u></p> <ul style="list-style-type: none">• As with all of the coastal Magnox Sites an ongoing issue for Sizewell A during C&M is the vulnerability of the site to flooding due to raised sea level and more frequent storm surges brought about by the anticipated effects of climate change in the coming decades. Although the site is significantly elevated above the current sea level, the effect of sea level rise could potentially be exacerbated by the susceptibility of this stretch of Suffolk coast to erosion by wave action, , and historic instances of storm surge flooding (e.g. North Sea Flood 1953) indicate that the site could potentially be vulnerable• The C&M phase at the site, during which the reactors will be in Safestore, is scheduled to last until 2088, by which approximate time (2090-99) the Intergovernmental Panel on Climate Change has projected that the worst case scenario (emission scenario A1FI) of sea level rise is in the range 0.26 – 0.59m (relative to 1980-99 levels).¹ The site is situated at an elevation of approximately 9m above Ordnance Datum (mAOD), and is protected from flooding and erosion by soft defences	<p>1. IPCC (2007) <i>Projections of Future Change in Climate</i>, http://www.ipcc.ch/publications_and_data/ar4/wg1/en/spmsspmp-projections-of.html</p>
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	<p>comprising a line of relict, vegetated sand dunes which were remodelled to provide a two-layered defence, consisting of a 10mAOD inner ridge and 5mAOD outer ridge.</p> <ul style="list-style-type: none"> Any further measures necessary to prevent flooding of the site during the C&M period, such as improvements to the flood defences (or similar), will be identified through the Periodic Safety Review. Furthermore, the rise in sea level during the C&M period will be gradual, allowing the advance planning of any necessary mitigation measures. 	
<p>Biodiversity, Flora and Fauna</p>	<ul style="list-style-type: none"> The site is situated in a predominantly rural setting, and has a number statutorily designated areas in close proximity. These designated areas are: <ul style="list-style-type: none"> Minsmere-Walberswick Heaths and Marshes Site of Special Scientific Interest (SSSI) Minsmere-Walberswick Heaths and Marshes Special Area of Conservation (SAC, incorporated into the SSSI) Minsmere-Walberswick Special Protection Area (SPA, incorporated into the SSSI) Minsmere-Walberswick Ramsar (incorporated into the SSSI) Sizewell Marshes SSSI Leiston-Aldeburgh SSSI Sandlings SPA (incorporated into the Leiston-Aldeburgh SSSI) Alde-Ore Estuary SPA Suffolk Coast and Heaths Area of Outstanding Natural Beauty (AONB) Off-site structures, the cooling water intake and outflow rigs are designated a County Wildlife Site as they support a breeding Kittiwake colony.¹ These classifications qualify the coastline adjacent to the site as a European Marine Site.^{2c} The Environment Agency (EA) concluded that exposure to ionising radiation from authorised discharges of radioactivity from the UK's nuclear installations did not significantly impact wildlife in England and Wales.³ 	<p>1. <i>Sizewell A Site Environmental Impact Assessment Baseline (EIAB) Report</i> 2. <i>Natural England (2011) England's European Marine Sites, available at http://www.naturalengland.org.uk/ourwork/marine/protectandmanage/mpa/europeansites.aspx</i> 3. <i>Environment Agency (2002) Impact Assessment of Ionising Radiation on Wildlife</i></p>
<p>Landscape and Visual</p>	<ul style="list-style-type: none"> The site is located on the coastal plain of the Suffolk North Sea coast, on a low plateau several metres above sea level.¹ 	<p>1. <i>Ordnance Survey (2011) 1:25,000 Sheet</i></p>

^c Where an SPA or SAC is continuously or intermittently covered by tidal waters or includes any part of the sea adjacent to the UK, the site is referred to as a European Marine Site. At Sizewell A this is called the Minsmere-Walberswick Heaths and Marshes European Marine Site.

	<ul style="list-style-type: none"> • The surrounding landscape is open and very gently undulating, with several small estuaries interspersed along with coastal plain. The land gently rises to the west and north-west, but generally the broad setting is typical of East Anglia.² • The Sizewell Sites comprise a dominant visual element at the local scale. The gently undulating land combines with existing trees and hedgerows and tends to screen most inland views of the sites in all but the closest viewpoints, with some notable exceptions just north of Leiston.² • The Heritage Coast designation in the vicinity of Sizewell (part of the AONB) is a landscape designation of national importance. 	<p><i>212, Woodbridge and Saxmundham</i> <i>2. Sizewell A Site Environmental Impact Assessment Baseline (EIAB) Report</i></p>
<p>Archaeology & Cultural Heritage</p>	<ul style="list-style-type: none"> • There are 3 Scheduled Ancient Monuments within 5km of the site; St Mary’s Abbey, and Moat and Bowl Barrows at Aldringham Green and at Aldringham Common. • There are about 30 Listed Buildings within 5km of the site. • There are no entries in the draft Register of Landscapes, Parks and Gardens of Special Historic Interest, as listed by Natural England, near to the site. 	<p><i>Sizewell A Site Environmental Impact Assessment Baseline (EIAB) Report</i></p>
<p>Groundwater, Geology and Soils</p>	<ul style="list-style-type: none"> • Made ground, consisting of reworked Crag underlies the site itself. The natural superficial deposits in the site locality consist of a thick layer of the Plio-Pleistocene Crag Group. This Crag consists of fine to medium grained shelly micaceous sands, with gravel flints. • The bedrock at the site consists of several successive groups of Palaeocene-Eocene age. The uppermost are the Thames Group: Harwich Formation (undivided), consisting of silty sandstone and volcanic ash layers, which overlies the Harwich Formation (Hales Clay Member), consisting of sandy mudstones with rare volcanic layers. Underlying these formations are the Lambeth Group, consisting of mottled mudstones, sands and silts and Ormesby Clay Formation, consisting of mudstone. The Cretaceous Chalk Group basement rock underlies the Cenozoic rocks at depth. • The superficial deposits at site are considered to be a Minor aquifer, although the made ground is not classified, but is likely in hydraulic continuity with the underlying Minor Aquifer. • The Palaeocene-Eocene age bedrock is considered to be a Minor Aquifer, whilst the Cretaceous age chalk rock is a Major Aquifer of regional importance. 	<p><i>1. Sizewell A Site Environmental Impact Assessment Baseline (EIAB) Report</i></p>

- There are 22 licenced abstractions within 5km of the site for a mixture of agricultural, domestic, industrial and public use. Nearby abstraction is a well in Sizewell village.
- The soil in the area surrounding the site is classified as a deep, well drained sandy soil.

Land Quality

- The site does not contain any contaminated land as defined by Part IIA of the Environmental Protection Act 1990.
- There are however several minor Areas of Potential Concern that have arisen from historic events, as well as very limited areas of known contamination (radioactive and chemical) that have either undergone remediation or are managed through the site Land Quality Strategy.
- The details of radioactive land quality issues are as follows:
 - An area of ground became contaminated due to a leak of active liquor from the pond. The contamination resulting from this event primarily affected the pond building structure, but an area of tarmac became surface contaminated. This land quality issue was considered minor, and was remediated by removal of the tarmac.
 - Historical leaks in the active effluent discharge line led to contamination of the original secondary containment. This containment structure remained intact, so the potential land quality issue that has arisen is considered minor.
 - Contamination of the surge chamber has arisen due to aerial deposition of radionuclides during discharge operations. The resulting land quality issue has been partially remediated by the removal of contaminated sand, and a new discharge line was installed to prevent further events of this nature occurring.
 - Further minor contamination is potentially present beneath building footprints or beneath the active discharge line, but sampling to ascertain the extent is not practical until decommissioning of those structures can be undertaken.
- Potentially chemically contamination land is associated with:
 - The use of hydrocarbons around the site and associated minor spillages and leaks. This contamination is primarily associated with transformers, redundant tanks and fixed motors.
 - Traces of PCBs, which were used in various parts of the site's electrical infrastructure.
- The site shall continue to manage land quality through the production and maintenance of a Land Quality file, Land Quality Characterisation Plan and Land Quality Strategy.²
- The site will also maintain and monitor appropriate arrangements for the control of work with potential implications

	<p>associated with contaminated land.</p>	
<p>Surface Water Resources and Quality</p>	<ul style="list-style-type: none"> • The nearest water course to the site is Leiston Brook, a tributary of the Minsmere River.¹ • The quality of the bathing waters in the North Sea in the site’s locality is considered to be at the higher pass standard. However, the nearest sampling point was situated near Southwold (approximately 10km to the north), so may not accurately reflect the water quality immediately adjacent to the site.² • The site is situated in Flood Zone 1 (so would be affected by floods less frequent than 1 in 1000 years), but is entirely surrounded by Flood Zone 3 (more frequent than 1 in 200 years).³ • Aqueous effluent discharges (and cooling water discharges during the operational phase) have always been made to the North Sea. Active aqueous effluent is discharged from the site via a dedicated pipeline combined with a spray bar dispersion head that was installed following the shutdown of the cooling water system, which had been the route for all liquid effluents previously. This dedicated line was designed to have as good dispersion characteristics as the previous system. A similar arrangement is in place for secondary treated sewage. Storm water and site drainage discharges are still made via the original outfall tunnel. 	<p>1. <i>Ordnance Survey (2011) 1:25,000 Sheet 212, Woodbridge and Saxmundham</i> 2. <i>Environment Agency (2014) Bathing Water Quality</i> 3. <i>Sizewell A Site Environmental Impact Assessment Baseline (EIAB) Report</i></p>
<p>Waste</p>	<ul style="list-style-type: none"> • Both operational and decommissioning activities at nuclear sites generate radioactive and conventional waste. • Low Level Waste (LLW) is generated at the site from a range of routine operational and decommissioning activities, and comprises a range of different materials. • The baseline for LLW is to package the waste and send it to the Low Level Waste Repository (LLWR) near Drigg in Cumbria for disposal. • Opportunities to characterise or decontaminate to Very Low Level Waste (VLLW, for controlled burial) or out of scope (for permitted landfill), size reduce, incinerate or metal melt, in order to reduce LLWR consignments, are actively sought. • Intermediate Level Waste (ILW) is generated from both operational and decommissioning activities. It has accumulated at several locations at the site. The majority of which will be retrieved during C&MP when an ILW store becomes available on site. The exception to this are some Miscellaneous Activated Components (MAC) stored in vaults in the concrete bioshield, which will be retrieved during FSC.¹ 	<p>1. <i>Magnox Ltd. (2011) Sizewell A Site IWS s Overview</i> 2. <i>DECC (2011) Implementing Geological Disposal Annual Report April 2010 – March 2011</i></p>

	<p><u>Site Waste Strategy Baseline</u></p> <ul style="list-style-type: none"> The use of self-shielding Ductile Cast Iron Containers (DCICs) for interim storage and eventual final disposal of solid and wet (which is dried within the container) ILW has been developed by Magnox Ltd., and is planned to be implemented at Sizewell A Site. This is supported by generic and site-specific options studies, but will also be subject to regulatory approval. The waste packages will be emplaced in the site ILW store for interim storage pending eventual phased transfer to the UK national Geological Disposal Facility (GDF) circa 2040 (but possibly as early as 2029).² 	
<p>Traffic and Transport</p>	<ul style="list-style-type: none"> The site access road connects to the B1122 via Lover's Land and the C228. This road links to the A12, which gives access to the national motorway network at Jct. 28, M25 to the south, and at Jct. 17 A1(M) via the A47 and A1139 to the north. The nearest railhead to the site is located on the Aldeburgh Branch Line (which is used almost exclusively by nuclear flask trains servicing the power station). The nearest passenger rail station is located at Saxmundham. 	<p>1. Ordnance Survey (2011) 1:25,000 Sheet 212, Woodbridge and Saxmundham</p>
<p>Land Use and Material Assets</p>	<ul style="list-style-type: none"> The site occupies an area of 10 hectares.¹ The adjacent Sizewell B Site occupies an area of 42 hectares.² 117 hectares of land have been nominated for development into a potential 'C' site.³ The site consists of one combined reactor building, turbine hall, various ancillary buildings, access roads, shingle areas, a small amount of grassed ground, and areas of hardstanding. The surrounding area is rural in nature and is used primarily for agricultural and recreational purposes. Notable uses in proximity to the site include the Suffolk Coastal Footpath that runs immediately alongside the site footprint to the east. The beach adjoining the site is also extensively used by the public throughout the year. The site incorporates a significant quantity of material that is potentially eligible for direct reuse or recycling: This includes a substantial quantity of recyclable metal in the turbine hall, the boilers, the gas ducts, the SPVs, and as rebar incorporated into large concrete structures such as the bioshield.⁴ A proportion of this recyclable metal will be made available for recycling during the C&MP phase, such as the turbine hall deplanting and demolition and other general building dismantling. The boilers, the primary circuit, the bioshield and the SPVs will be dismantled at FSC, so the majority of the recyclable metal on site will be produced at this time. A proportion of this material will be classified as ILW (activated reactor components in 	<p>1. Magnox Ltd (2013) Sizewell A – Facts and Figures. Available at http://www.magnoxsites.co.uk/our-sites/sizewell-a/facts-and-figures</p> <p>2. British Energy (2008) Environmental Product Declaration of Electricity from Sizewell B Nuclear Power Station – Technical Report 3. DECC (2011) National Policy Statement for Nuclear Power</p>

	<p>particular) so will likely not be suitable for recycling (and will likely be packaged and consigned to the UK Geological Disposal Facility, GDF), but the remainder will be LLW or out of scope of the regulations, and as such eligible for recycling and reuse within or outwith the nuclear industry.⁴</p> <ul style="list-style-type: none"> • A large volume of inert concrete and masonry rubble will be produced through demolition activities during C&MP and FSC, and will likely be reused on- or off-site as infill material, or similar.⁴ 	<p><i>Generation (EN-6), Vol. II 4. Magnox Ltd. (2011) Sizewell A Site IWS</i></p>
<p>Noise and Vibration</p>	<ul style="list-style-type: none"> • Noise and vibration originate from a number of sources at the site. • The Baseline Noise Survey Data (L_{Aeq} 1 hour, dB(A) (Daytime)) (both A and B Site generating, 2004) is as follows: <ul style="list-style-type: none"> ○ North Cottage (Sizewell) – 52.4 ○ Rosary Cottage – 51.7 ○ Coastguard Cottages – 53.1 ○ Timber Top – 53.4 ○ Home Farm – 54.5 ○ Cliff House – 48.4 ○ Sizewell Hall – 45.0 ○ Reckham Lodge – 49.1 ○ Keepers Cottage – 47.4 ○ Halfway Cottages – 63.1 ○ Caravan Site – 45.2 ○ Leiston Abbey – 41.1 ○ Wrayfields – 50.5 ○ The Studio – 51.9 ○ The Wilderness – 53.0 ○ Common Farm – 60.6 ○ King Georges Avenue – 62.0 ○ Crown Lodge – 63.7 ○ Common Farm Cottages – 55.5 	<p><i>Sizewell A Site Environmental Impact Assessment Baseline (EIAB) Report</i></p>

	<ul style="list-style-type: none">○ Sizewell Beach North – 47.6○ Sizewell Beach South – 54.9.¹ <ul style="list-style-type: none">● The criteria for the significance of noise are the proximity of noise sources to the receptors, and the presence of any screening / nature of the ground between the source and the receptor.● Noise and vibration originate from a number of sources at the site.● Since the cessation of generation the profile of noise and vibration from the site has changed; at the current time this is not significant but as decommissioning activities increase noise levels are likely to increase.	
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Table 2: Environmental Discharge Data for Baseline Years 2012 and 2013 for Sizewell A Site

In addition to the baseline information, which describes the permanent, semi-permanent and inherent features and impacts of Sizewell A Site and its surrounding area, the following table outlines discharge data for the site for the years 2012 and 2013^d, and how these quantities will likely change in future. This is intended to provide a quantitative ‘snapshot’ of the features of the site and impact that it has (and is anticipated to have in future), in order to supplement the baseline information.

SEA Objective	Environmental Discharge Data	Future Changes in Environmental Discharges	References
<p>Air Quality & Dust</p>	<ul style="list-style-type: none"> • Total Alpha discharged to air was below the reporting threshold in 2012 and 2013. • Total Beta and Gamma (excluding Tritium) to air in 2012 was 1.29E-05 TBq reducing to 1.16E-05 TBq in 2013. • Total Tritium to air was below the reporting threshold in 2012 and 2013¹ <p>As in recent years, the <i>total dose</i> from all pathways and sources was 0.021 mSv in 2012 or approximately 2 per cent of the dose limit. The dominant contribution to <i>total dose</i> at this site was from direct radiation. Dose from this pathway has reduced by a factor of three since Sizewell A ceased generation in 2006. The most exposed people were adults living in the vicinity of the site.²</p>	<ul style="list-style-type: none"> • Discharges of radioactivity to the atmosphere decreased significantly upon the cessation of generation. • As decommissioning progresses through the C&MP phase, the trend for discharges is likely to remain steady or continue to decrease. • However, certain decommissioning activities such as the as the retrieval, treatment and passivation of wastes and draining of the pond may result in short term spikes in aerial discharges of radioactivity. • Once the major hazard reduction projects have been completed and the site enters the extended, quiescent C&M phase, aerial discharges of radioactivity will be extremely low. • The degassing of desiccant material in storage, bioshield concrete and core graphite may result in very minor discharges of tritium. • Dust from demolition and traffic movement may affect the local area during all 3 decommissioning phases. Civil works will be a source of dust. 	<p>1. <i>Magnox 2012 and 2013 Nuclear Industry Sector Plan (NISP) Submissions</i> 2. <i>CEFAS (Centre for Environment, Fisheries and Aquaculture Science) (2012) Radioactivity in Food and the Environment 18</i></p>

^d Data from 2012 and 2013 are presented to provide an indication of variances

		<ul style="list-style-type: none"> • FSC will result in a temporary increase in aerial discharges of radioactivity. This is because the radioactive reactor cores and associated equipment and infrastructure will be dismantled at this point. Detailed estimates for the discharges from this process have not been made, but will likely comprise particulate as major remaining structures are demolished. • Retrieval of waste packages from site for transfer to the GDF when it becomes available during the C&M phase will result in traffic movements to the site. This retrieval will likely be phased over an extended period of time, so the impact from this is likely to be limited. 	
<p>Global Climate Change and Energy</p>	<ul style="list-style-type: none"> • In 2012, 15,287 MWh of energy was consumed. In 2013 consumption reduced to 13069 MWh. • Use of the boilers resulted in the direct emission of 2.2E-03 megatonnes of CO₂ in 2012, and 1.2E-03 megatonnes in 2013. • Energy consumption and use of fuel for transport resulted in the indirect emission of 5.09E-03 megatonnes of CO₂ in 2012 and 3.83E-03 in 2013.¹ 	<ul style="list-style-type: none"> • The site will draw power from the grid, via Sizewell B and operate plant and vehicles for decommissioning works such as ILW processing and for general domestic needs until the completion of C&MP. • During C&M the site’s power usage will be very low, but periodic inspections and maintenance will result in very small spikes in energy usage. • The retrieval of waste packages from the site ILW store during C&M will result in intermittent vehicle movements to and from the site. Energy use and the operation of numerous vehicles will resume on a significant scale during FSC. • However, the types of the vehicles in use and the nature of energy mix in use in the UK at these dates cannot be predicted, thus the associated CO₂ emissions in absolute 	<p><i>1. Magnox 2012 and 2013 Nuclear Industry Sector Plan (NISP) Submissions</i></p>

		<p>terms and relative to the present are unknown.</p>	
<p>Surface Water Resources and Quality</p>	<ul style="list-style-type: none"> • Total Alpha liquid discharges were 5.00E-05 TBq in 2012 reducing to 4.76E-05 TBq in 2013. • Total Beta Gamma (excluding Tritium) liquid discharges were 2.22E-01TBq in 2012 reducing to 2.04E-01 TBq in 2013. • Total Tritium liquid discharges were below the reporting threshold in 2012 and 2013.¹ <p>Regulated discharges of radioactive liquid effluent are made via outfalls to the North Sea. Caesium-137 discharges decreased from both Sizewell A and Sizewell B in comparison to those in 2011. In the aquatic programme, analysis of seafood, sediment, and seawater, and measurements of gamma dose rates were conducted in intertidal areas.²</p> <p>Concentrations of artificial radionuclides were low and mainly due to the distant effects of Sellafield discharges and to weapons testing. Tritium concentrations in seafood were all below the LoD. Caesium-137 concentrations in sediment have remained low over the last decade. Overall, gamma radiation dose rates over intertidal areas were difficult to distinguish from the natural background, although the dose rates at Southwold Harbour increased in comparison to those in recent years, most likely due to natural variation.²</p>	<ul style="list-style-type: none"> • As decommissioning progresses through the C&MP phase the trend will likely be for discharges to decrease. • However, certain decommissioning activities such as the retrieval, treatment and passivation of wastes, and draining of the ponds may result in short term spikes in aqueous discharges of radioactivity. • Once the major hazard reduction projects have been completed and the site enters the extended, quiescent C&M phase, aqueous discharges of radioactivity will be very low, but not zero. • FSC will result in temporary discharges of aqueous radioactivity, primarily from waste treatment as the radioactive reactor cores and associated equipment / infrastructure are dismantled. However, detailed estimates for the discharges due to this have not yet been made. 	<p>1. <i>Magnox 2012 and 2013 Nuclear Industry Sector Plan (NISP) Submissions</i> 2. <i>CEFAS (Centre for Environment, Fisheries and Aquaculture Science) (2012) Radioactivity in Food and the Environment 18.</i></p>

<p>Waste</p>	<ul style="list-style-type: none"> • The following waste metrics are for 2012 and 2013: • In 2012 the site produced 161.23 m³ of LLW from routine operational activities which was reused, recycled or disposed of. • 15.95 m³ of this total was reused, 28.80 m³ metal was recycled and 116.48 m³ of this total was treated as combustible waste. • In 2013 the site produced 179 m³ of LLW from routine operational activities¹. • 115.8 m³ of this total LLW was treated (through incineration) and 10 m³ of metal was recycled. 53.2 m³ was disposed of to the LLWR.¹ • In 2012 the site produced 51.4 tonnes of inert waste from operational activities, of which 100% of this total was reused or recycled.¹ • 318.15 tonnes of non-hazardous waste was produced from operational activities. 80% of this total was reused or recycled.¹ • 62.4 tonnes of non-hazardous was produced from decommissioning activities, of which 100% was recycled. • In 2013 the site produced 109.7 tonnes of inert waste from operational activities, of which 100% of this total was reused or recycled.¹ • 821.4 tonnes of non-hazardous waste was produced from operational activities. 96% of this total was reused or recycled.¹ 	<ul style="list-style-type: none"> • As decommissioning progresses through the C&MP phase the trends for waste generation will likely remain at current levels or increase. When the site enters C&M in 2015 these levels will fall significantly. 	<p><i>1. Magnox 2012 and 2013 Nuclear Industry Sector Plan (NISP) Submissions</i></p>
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The following table illustrates further parameters that are significant for the site.

Table 3: Additional Data for baseline Year 2012 and 2013 for Sizewell A Site

SEA Objective	Additional Data	Changes in Additional Parameters	References
Surface Water Resources and Quality	<ul style="list-style-type: none"> In 2012 the site consumed 24756 m³ of mains water reducing to 11004 m³ in 2013. 	<ul style="list-style-type: none"> Water consumption at the site is likely to continue for the duration of the C&MP period at a similar level. 	1. <i>Magnox 2012 and 2013 Nuclear Industry Sector Plan (NISP) Submissions</i>
Economy, Society and Skills	<ul style="list-style-type: none"> The site is located in the rural area of Suffolk Coastal District in the county of Suffolk.¹ The major settlements within 10km of the site are Leiston and Saxmundham to the west and Aldeburgh to the south, as well as a number of smaller settlements in addition. The population of the Suffolk Coastal District was 124,400 during 2013.² The Suffolk Coastal District had a working population of 62,300 during 2013.² The dominant working sectors in the Suffolk Coastal District during 2013 was Services (40100, 87.4 %) and Public Administration, Education and Health (10800, 23.6 %). Employment in the Electricity, Gas and Water Supply industry in the Suffolk Coastal District was not listed, 	<ul style="list-style-type: none"> The number of personnel employed on site will decrease significantly after the completion of C&MP. Personnel numbers at the site will increase again for the duration of FSC. 	1. <i>Ordnance Survey (2011) 1:25,000 Sheet 212, Woodbridge and Saxmundham</i> 2. <i>Office for National Statistics (2014) Official Labour Market Statistics, available at http://www.nomisweb.co.uk/</i> 3. <i>EU (2014) Cohesion Policy 2007 – 13, available at http://ec.europa.eu/regional_policy/atlas2007/index_en.htm</i>

	<p>but the effect of employment at the site is likely to be low against the total working population of this district.</p> <ul style="list-style-type: none"> • In 2013 (24300, 33.9 %) of the population were employed to NVQ4 level or above. • The Suffolk Coastal District is not subject to Convergence Funding from the European Union, or other external assistance.³ 		
<p>Traffic and Transport</p>	<ul style="list-style-type: none"> • The Annual Average Daily Traffic (AADT) from all traffic movements on the A1094 (a route connecting the site to the A12) from recent measurements was 8668, of which 258 were Heavy Goods Vehicle (HGV) movements.¹ • On the A12 to the south of Saxmundham, on the route towards London and the national motorway network, the AADT from all traffic movements was 15425, of which 778 were HGV movements.¹ • The proportion of these total movements that are directly attributable to the site is very low, and will continue to be so even during periods of increased work at the site. 	<ul style="list-style-type: none"> • It is anticipated that general traffic and HGV movements will remain steady or increase during the remainder of the C&MP phase at the site. • Movement of materials for potential future major construction or other projects e.g. delivery of DCICs to site, construction of the site ILW store will generate extra traffic movements, as will movement of demolition waste and other inert material for reuse or conventional disposal. • A similar increase in traffic flows on local roads can be expected for the duration of the FSC phase. 	<p><i>Department for Transport (2014) AADF Home, available at: http://www.dft.gov.uk/matrix/search.aspx</i></p>

Figure 1: Statutorily Designated Areas in the Vicinity of Sizewell A Site

