Oldbury 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

Oldbury Site
Oldbury Naite
Thornbury
South Gloucestershire
BS35 1RQ

Oldbury Site

Oldbury Site (hereafter referred to as the Site) is a twin reactor Magnox station undergoing defueling and is located in South Gloucestershire, South West England. It is situated on the eastern bank of the River Severn, from which it draws cooling water supplies during its operational phase. This power station site covers an area of 71 hectares.[1] The following describes the key dates for the site:

- Construction of the site commenced in 1961, and electricity was first supplied to the grid in 1967.[1]
- Oldbury ceased generation in February 2012, after 44 years of safe operation, and is now in the process of defuelling which is planned to be completed by 2016.[2]
- 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 are estimated to be cleared by 2101.[2]

[1] *Magnox Ltd (2013) Oldbury. Available at http://www.magnoxsites.co.uk/site/oldbury/*
[2] *Nuclear Decommissioning Authority (NDA) Business Plan, 2012-2015*

Site End State Assumption

The planned end state for Oldbury 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 Oldbury Site

SEA Objective	Environmental Baseline Data	References
Air Quality & Dust	*Radioactive Discharges* Radioactive discharges to air and water from Oldbury during decommissioning will continue to be made in accordance with authorisations granted by the Environment Agency (EA) under the provisions of The Environmental Permitting (England and Wales) Regulations 2010. It is expected that annual gaseous and liquid discharges will reduce, although there may be some temporary peaks resulting from certain hazard reduction activities.[1] *Conventional Discharges* • Vehicles, diesel generators and gas turbines are employed on the site, which are sources of air quality contaminants including NO_x (oxides of nitrogen), SO_x (oxides of sulphur) and PM_{10} (particulate with a diameter <10µm). These sources run only intermittently, and 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. • 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. Magnox Ltd, 2013, Oldbury Site Environmental Management Plan (Decommissioning), Issue 5.* *2. DEFRA (2014) Air Quality, http://aqma.defra.gov.uk/aqma/list.php*
Global Climate Change and Energy	• Throughout the stages of defuelling and decommissioning, the site will draw power from the National Grid to run existing plant and to satisfy domestic power needs, the use of this energy results in indirect CO_2 emissions, due to the mixed generation used in the UK. • In addition to grid supplies, the site has several essential items of plant for the provision of back-up power which are fossil	*1. IPCC (2007) Projections of Future Change in Climate, http://www.ipcc.ch/publications_and_data/ar4/wg1/en/spmsspm-projections-of.html*

fuel powered. Auxiliary equipment at the site consists of 3 gas turbines (2 operational, 1 backup) and diesel generators. These machines are not in constant use; instead they are there for emergencies, but are regularly run for testing purposes.

- *A number of vehicles* are based at the site which are either used within the site footprint or move from the site to further afield (e.g. vehicles used in carrying out the District Survey, which is carried out on behalf of Berkeley Site), and have associated carbon emissions. Indirect carbon emissions originate from the use of hire vehicles by site personnel when travelling on company business.
- The site incinerator, which is used for combustible LLW, is also a source of CO_2 emissions.
- 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.
- Additionally, the gas turbine plant is covered by the EU Emissions Trading Scheme. This plant will be removed from service in 2014, at which point diesel generators will provide a back-up supply function.

Climate Change and Flooding

- As with all of the coastal Magnox Sites an on-going issue for the site during the C&M phase is the potential for flooding due to raised sea level and more frequent storm surges brought about by the anticipated effects of climate change in the coming decades. The C&M phase at the site, during which the reactors will be in Safestore, is scheduled to last until 2096, 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 1990-99 levels) [1]. The site is situated at an elevation of 10m above Ordnance Datum (mAOD) and the flood defences at Oldbury consist of a grass covered embankment up to 2m high above the adjacent natural ground level, with stone pitching (to withstand erosion) between the site and the foreshore.
- Any further measures necessary to prevent flooding of the site during the C&M period, such as improvements to the flood defences, 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.

Biodiversity, Flora and Fauna	• The site is situated in a predominantly rural setting, and has 5 designated areas in close proximity.
	• These designations recognise the fact that the Severn is an important habitat for migratory fish and birds, with the inter-tidal mudflats being of key importance to the migration of several internationally-protected bird species [1].
	• These designated areas are:
	  ○ Severn Estuary Site of Special Scientific Interest (SSSI)
	  ○ Severn Estuary Special Area of Conservation (SAC)
	  ○ Severn Estuary Special Protection Area (SPA)
	  ○ Severn Estuary Site of Nature Conservation (SNCI)
	  ○ Severn Estuary Ramsar.[1]
	• Due to these designations the coastline adjacent to Oldbury is also classified as the Severn Estuary European Marine Site[3].
	• The site Biodiversity Action Plan considers how the site manages its impacts on local ecosystems. This document is reviewed and updated on an annual basis.
	• 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.[2]
		1. Oldbury Site Environmental Impact Assessment Baseline (EIAB) Report
		2. Environment Agency (2002) Impact Assessment of Ionising Radiation on Wildlife
		3. Natural England (2011) England's European Marine Sites, available at http://www.naturalengland.org.uk/ourwork/marine/protectandmanage/mpa/europeansites.aspx

Landscape and Visual	• The site is located on the eastern bank of the River Severn.[1] • The surrounding landscape is a semi-open and flat estuarine flood plain environment. Higher ground is situated at a distance to the east (Severn Ridges Character Area) and to the west on the opposite bank of the River Severn.[2] • The site is a prominent feature in the local landscape, being highly visible from multiple locations in close proximity and at medium-long distances including nearby villages and from the Severn Bridge.[2]	*1. Ordnance Survey (2011) 1:25,000 Sheet 167, Thornbury, Dursley and Yate* *2. Oldbury Site Environmental Impact Assessment Baseline (EIAB) Report*
Archaeology & Cultural Heritage	• There are 3 Scheduled Ancient Monuments near to the site, at Rockhampton, Oldbury-on-Severn and at Stroat. • There are a large number of Listed Buildings near to the site, including the Severn Bridge. • There are 4 entries in the draft Register of Landscapes, Parks and Gardens of Special Historic Interest; Tortworth Park,	*1. Oldbury Site Environmental Impact Assessment Baseline (EIAB) Report.*

	Whitcliff Park, Berkeley Castle, and Thornbury Castle as listed by Natural England near to the site. • The reactors at Oldbury were the first in the Magnox Programme to use Pre-stressed Concrete Pressure Vessels, so represented a considerable technical advance over the previous Magnox stations and paved the way for the subsequent Advanced Gas-cooled Reactor Programme.	
Groundwater, Geology and Soils	• Made ground immediately underlies much of the site, and consists primarily of reworked mudstone and estuarine alluvium. The natural superficial deposits in the site locality consist of Quaternary Alluvium, which is a soft to stiff clay that is sandy in areas, and contains occasional gravel and peat layers. • The uppermost bedrock unit at the site consists of Permo-Triassic Mercia Mudstone, predominantly red sandstone with siltstones and halite layers. Evaporite beds and mudstones are also present. This whole unit is further subdivided into several distinct layers. The uppermost is a weathered layer consisting of lithorelicts in a clayey matrix, a leached layer with cavities left by gypsum dissolution, an unleached layer containing gypsum nodules within the silt- and sandstones, and a basal conglomerate. The Devonian Old Red Sandstone underlies the Permo-Triassic rocks, and consists of a very thick deposit of red brown silt- and sandstones. • The superficial deposits at the site are considered a non-aquifer. • The Mercia Mudstone and the Old Red Sandstone bedrock facies are both considered to be Minor Aquifers. The aquifer within the Mercia Mudstone is banded ('multi-aquifer system'), with groundwater located within the sandstones, and prevented from movement between these bands by the silt- and mudstones. • There is 1 licenced abstraction borehole on the site (with a further 11 within 5km of the site), but this borehole is not in regular use. • The soils in the area surrounding the site are classified as loamy / clayey soils characteristic of coastal flats, and is classified as a Grade 3 agricultural quality soil.[1] *Land Quality* • The site is considered to have limited radioactive and non-radioactive land contamination. • Two areas of land contaminated by radioactivity have been identified, one is associated with pond water that leaked from the	*1. Oldbury Site Environmental Impact Assessment Baseline (EIAB) Report*

	Pond Water Cooler (PWC) and was discovered in 1976. This has resulted in limited ground contamination and a volume of contaminated groundwater that is small, stable and confined under current conditions. A second area of contaminated land / groundwater has resulted following seepage from underground voids containing pond water. This is currently being characterised in accordance with Company procedures. • The very localised areas of land affected by non-radioactive contamination generally arose from losses and spillages of hydrocarbons during the operational phase, and potentially from the authorised disposal of material during the construction and operational period. • A new suite of monitoring boreholes was installed at the site in 2008 to improve the groundwater monitoring programme which continues to closely monitor distributions of PWC contamination at site to ensure it is not migrating. • 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 that could affect areas of land contamination.	
Surface Water Resources and Quality	• The nearest major water course to the site is the River Severn. Oldbury Pill discharges to the Severn approximately 1.5 km to the south of the site.[1] • The ecological and chemical status of Oldbury Pill is considered poor under the Water Framework Directive.[2] • Aqueous effluent and cooling water discharges are made to the River Severn via a culvert that runs underneath the tidal reservoir to the central part of the river channel (to attain maximum dispersion of radioactivity). • Due to the high sediment load in the Severn, the tidal reservoir becomes heavily silted. This necessitates periodic dredging of the area of the tidal reservoir around the cooling water intake to ensure that the supplies of water are not jeopardised. Silt is dredged and pumped into lagoons adjacent to the station (entrained water is discharged back to the river), three of which have been used through the station's operational lifetime. Two lagoons to the immediate north of the station (Lagoons 1 and 2) have been filled to capacity and have been delicensed, whilst Lagoon 3 to the immediate south of the station is subject to a PPC landfill permit. No more material will be deposited and the landfill is to be closed and the permit surrendered imminently.	*1. Ordnance Survey (2011) 1:25,000 Sheet 167, Thornbury, Dursley and Yate* *2. Environment Agency (2011) Water Framework Directive – River Basin Management Plans – Rivers*

	• As part of the delicensing project carried out in 2009/10 an extensive statistical analysis of environmental monitoring data revealed that Lagoons 1 and 2, which are formed of river silt dredged from the tidal reservoir were not radioactively contaminated. As such, these results demonstrate that the radiological impact of the station on river sediments can be deemed to be very low, even in close proximity to the station. • The operational silt lagoon (Lagoon 3) incorporates a liner in order to prevent saline intrusion into the local water table from the brackish water previously pumped from the tidal reservoir. A periodic monitoring programme (coinciding with dredging operations) of boreholes and surface ponds adjacent to the lagoon ensured that saline concentrations in the groundwater do not reach levels of concern. • Although the Severn, adjacent to the site is brackish and tidal, it is not considered to be the Severn Estuary at that point, as this is generally taken to be everything south of the Severn Bridge, which is located approximately 6km to the south of the site. • Now that the site has entered defuelling and decommissioning phase, a new active effluent discharge line is planned to be installed to replace the existing system which discharges to the CW system. • Throughout the operational phase dispersion of liquid effluent has been provided by the Cooling Water (CW) system. Now that the site has entered defuelling phase the CW system has been shut down, so a new active effluent discharge line in planned to be installed to cater for liquid discharges (which will continue until the end of decommissioning), which will provide dispersion characteristics as good as or better than the existing system.	
Waste	• Both operational and decommissioning activities at nuclear sites generate radioactive and conventional waste. • Silt lagoon 3 is classified by the EA as a landfill (non-hazardous). Seaweed and other organic matter that is removed from the filters on the station's cooling water intake is disposed to the lagoon. This waste will no longer be generated now the CW pumping system is non-operational, potentially allowing a future reclassification of the lagoon. • 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 near Drigg in Cumbria for disposal.	*1. Magnox Ltd (2011) Oldbury IWS* *2. DECC (2011) Implementing Geological Disposal Annual Report April 2010 – March 2011*

	• 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 been accumulated at several locations at the site. The majority of this waste 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 reactor pressure vessel which will be retrieved during FSC. *Site Waste Strategy Baseline* • The current baseline is the use of self-shielding Ductile Cast Iron Containers (DCICs) for interim storage and eventual final disposal of solid and wet ILW which has been developed by Magnox Ltd. 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]	
Traffic and Transport	• The site access road connects to the A38 trunk road directly or via Thornbury. This road links to the national motorway network at Jcts. 14 (northbound) and 16 (southbound, and for direct access to M4), M5. • The nearest railhead to the site is located on the Sharpness Branch Line near to Berkeley Site (which is operational but infrequently used). The nearest passenger rail station is Yate station.	1. Ordnance Survey (2011) 1:25,000 Sheet 167, Thornbury, Dursley and Yate
Land Use and Material Assets	• The site occupies an area of 71 hectares.[1] • 150 hectares of NDA-owned land adjacent to the site was acquired by Horizon Nuclear Power in 2009 for the potential future construction of a new nuclear power station site.[2] • The site consists of a single reactor block, turbine hall, ILW vaults, various ancillary buildings, access roads, grassy areas and areas of hardstanding.	*1. NDA (2011) Strategy Document* *2. Horizon Nuclear Power (2011) http://www.horizonnuclearpower.com/oldbury* *3. Magnox Ltd. (2011) Oldbury Site*

	• 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 Severn Way footpath, which runs through the Site footprint (between the main reactor area and the cooling water forebay complex, both of which are fenced off from the path). • The site incorporates a significant quantity of material that is potentially eligible for direct reuse or recycling once generation has ceased and the site is undergoing decommissioning: • This includes a substantial quantity of recyclable metal in the turbine hall, the reactor internals (boilers, pressure vessel liner) and incorporated into the Pre-Stressed Concrete Pressure Vessels (stressing cables, Pressure Vessel Cooling System pipework), and large metallic devices such as the gas circulators and steam turbines. • A proportion of this recyclable metal will be made available for recycling during the C&MP phase, such as from the turbine hall deplanting and demolition and other general building dismantling. • The Pre-stressed Concrete Pressure Vessels and their contents 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 particular) so will likely not be suitable for recycling (and will likely be packaged and consigned to the GDF), but the remainder will be LLW or exempt, and as such eligible for recycling and reuse within or outwith the nuclear industry. • 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.	*IWS*
Noise and Vibration	• Noise and vibration originate from a number of sources at the site. • The Baseline Noise Survey Data ($L_{Aeq\ 1\ hour}$, dB(A) (Daytime)) (during C&MP) is as follows: ○ Jobsgreen Farm – 50.5 ○ Knight Farm – 47.2 ○ Lowgoods Farm – 45.0 ○ Riding School – 47.7 ○ Houses in Oldbury Naite – 46.2 ○ Vine Farm – 41.0	*1. Oldbury Site Environmental Impact Assessment Baseline (EIAB) Report.*

	○ Oldbury House – 40.5 ○ Houses on Ham Lane – 41.2 ○ Houses on Chapel Road – 41.6 ○ Houses in Oldbury on Severn – 40.5 ○ Houses on Westend Lane – 43.2 ○ Houses on Hill Lane – 41.3 ○ Brick House Farm – 43.2 ○ Shepperdine Farm (North) – 44.7 ○ Nupdown Farm – 39.9.[1]	

Table 2: Environmental Discharge Data for Baseline Years 2012 and 2013 for Oldbury Site

In addition to the baseline information, which describes the permanent, semi-permanent and inherent features and impacts of the site and its surrounding area, the following table outlines discharge data for the site for years 2012 and 2013[c], 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
Air Quality & Dust	• Total Alpha discharged to air in 2012 was <1.00E-06 TBq and 1.00E-06 TBq in 2013 • Total Beta and Gamma (excluding Tritium) to air in 2012 was 2.40E-05 TBq and 3.1E-01 TBq in 2013. • Total Tritium to air in 2012 was 9.80E-01 TBq and 3.00E-01 TBq in 2013.[1] The *total dose* from all pathways and sources of radiation is assessed to have been 0.014 mSv in 2012, which was less than 2 per cent of the dose limit, and up from 0.006 mSv in 2011. The higher value in 2012 was due to an increase in the dominant contributor, from external exposure over intertidal areas, mostly because gamma dose rates were measured on different types of substrate (near the Oldbury site) from one year to the next. Adults were identified as the most exposed age group, a change from that in 2011 (prenatal children). Any longer-term variations in *total doses*	• As decommissioning progresses through the C&MP phase the trend will be for discharges to remain steady or continue to decrease. • 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, the PCPV and core graphite may result in very minor discharges of tritium. • Dust from demolition and traffic movement may affect the local area during decommissioning. Civil works will be a source of dust. • FSC will result in a temporary increase in aerial discharges of	*1. Magnox 2012 and 2013 Nuclear Industry Sector Plan (NISP) Submissions* *2. CEFAS (Centre for Environment, Fisheries and Aquaculture Science) (2012) Radioactivity in Food and the Environment 18*

[c] *Data from 2012 and 2013 are presented to provide an indication of variances.*

	with time are attributable to changes in the contribution from direct radiation from the site.[2]	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. • 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.	
Global Climate Change and Energy	• In 2012, 30271 MWh of energy was used at the site. In 2013 the consumption reduced to 28286 MWh. • Direct CO_2 and other greenhouse gas emissions generated in 2012 were 8.00E-04 megatonnes, and 5.90E-04 megatonnes in 2013. • Indirect CO_2 and other greenhouse gas emissions generated (including energy consumption and site diesel usage) was 1.79E-02 megatonnes in 2012 and 1.53E-02 megatonnes in 2013.	• The site will draw power from the grid 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 CO_2 emissions relative to the present are unknown.	*1. Magnox 2012 and 2013 Nuclear Industry Sector Plan (NISP) Submissions*

Surface Water Resources and Quality	• Total Alpha liquid discharges were 2.20E-05 TBq in 2012 decreasing to <1.0E-06 TBq in 2013. • Total Beta Gamma (excluding Tritium) liquid discharges were 2.60E-01 TBq in 2012 reducing to 1.90E-01 TBq in 2013. • Total Tritium liquid discharges were 1.30E-01 TBq in 2012 reducing to 1.20E-01 TBq in 2013.[1] Liquid radioactive wastes are discharged to the Severn Estuary. Discharges from Oldbury decreased in comparison to those in 2011, due to the closure of Reactor 1 in 2012. Analyses of seafood and marine indicator materials and measurements of external radiation over muddy intertidal areas were conducted. Most of the artificial radioactivity detected was due to caesium-137. Concentrations of radiocaesium represent the combined effect of discharges from the sites, other nuclear establishments discharging into the Bristol Channel and weapons testing, and possibly a small Sellafield-derived component. Caesium-137 concentrations in sediment have been generally consistent over the last 5 years. In 2012, tritium concentrations in fish were measured below the LoD and detected in lower concentrations in shrimps compared to those in 2010 (not sampled in 2011). Very small concentrations of other radionuclides were detected but, taken together, were of low radiological significance.	• Discharges of aqueous radioactivity will decrease significantly upon the cessation of generation and dispatch of all the spent fuel to Sellafield. • As decommissioning progresses through the C&MP phase the trend will be for discharges to continue to decrease. • However, certain decommissioning activities such as the retrieval, treatment and passivation of wastes 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 [3]. • 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 been made.	*1. Magnox 2012 and 2013 Nuclear Industry Sector Plan (NISP) Submissions* *2. CEFAS (Centre for Environment, Fisheries and Aquaculture Science) (2012) Radioactivity in Food and the Environment 18.*

Waste	• The following waste metrics are for 2012 and 2013: • In 2012 the site produced 111.65 m^3 of LLW from routine operational activities which has been reused, recycled or disposed of. From this, 2.15 m^3 metal LLW was recycled and 90 m^3 was treated, • 19.5 m^3 of the total LLW was disposed of to the LLWR [1]. • In 2013 the site produced 55.9 m^3 of LLW from routine operational activities which has been reused, recycled or disposed of. From this 7.4 m^3 metal LLW was recycled and 48.5 m^3 was treated.[1] • In 2012 the site produced 92185 tonnes of inert waste from dredging activities, of which 100% of this total was reused or recycled.[1] • 1182 tonnes of non-hazardous waste was produced from operational activities. 84% of this total was reused or recycled.[1] • In 2013 the site produced 84615 tonnes of inert waste from operational activities, of which 100% was reused or recycled.[1] • 459 tonnes of non-hazardous waste was produced from operational activities. 86% of this total was reused or recycled.[1]	• As decommissioning progresses through the C&MP phase the trends for waste generation will likely increase. When the site enters C&M these levels will fall significantly.	*1. Magnox 2012 and 2013 Nuclear Industry Sector Plan (NISP) Submissions*

The following table illustrates further parameters that are significant for the site.

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

SEA Objective	Additional Data	Changes in Additional Parameters	References
Surface Water Resources and Quality	• In 2012 the site consumed 217100 m^3 reducing to 142222 m^3 of mains water in 2013.[1] • The reduction in water can be attributed to repair of a water leak and reduced operational demand.	• Water consumption will likely remain steady throughout C&MP, but drop to essentially zero once the site has entered C&M.	*1. Magnox 2012 and 2013 Nuclear Industry Sector Plan (NISP) Submissions*
Economy, Society and Skills	• The site is located in a rural area of South Gloucestershire. • The major settlements within 10km of the site are Thornbury and Alveston to south east, Berkeley to the north-west and Almondsbury to the south. There are numerous small villages and settlements in the area in addition to these larger towns.[1] • The population of South Gloucestershire was 269100 during 2013.[2] • South Gloucestershire had a working population of 146500 during 2013.[2] • The dominant working sectors in South Gloucestershire during 2013 were Services (109400, 81.5 %) and Public Admin, Education and Health (36600, 27.3 %). • Employment in the Electricity, Gas and Water Supply industry in South Gloucestershire was not listed, but the effect of employment at the site is likely to be low against the total working population of this district.	• 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. Ordnance Survey (2011) 1:25,000 Sheet 167, Thornbury, Dursley and Yate* *2. Office for National Statistics (2014) Official Labour Market Statistics, available at http://www.nomisweb.co.uk/* *3. EU (2014) Cohesion Policy 2007 – 13, available at http://ec.europa.eu/regional_policy/atlas2007/index_en.htm*

	• In 2012, 55100 (31.1 %) of the population were employed to NVQ4 level or above. • South Gloucestershire is not subject to Convergence Funding from the EU, or other external assistance.[3]		
Traffic and Transport	• The Annual Average Daily Traffic (AADT) in 2013 from all traffic movements on the A38 (at a count point north of where the local road from the site joins the A38) from recent measurements was 7834, of which 418 were Heavy Goods Vehicles (HGV) movements. • On the M5, close to the north of Jct. 14 the AADT from all traffic movements was 75239, of which 8240 were HGV movements. • The proportion of these total movements that are directly attributable to the site is very low, and in general will continue to be so even with the exception of temporary peaks in traffic movements during certain decommissioning projects.	• It is anticipated that general traffic and HGV movements will remain high, or increase during the C&MP phase at Oldbury 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 during the FSC phase.	*Department for Transport (2014) AADF Home, available at: http://www.dft.gov.uk/matrix/search.aspx*

Figure 1: Statutorily Designated Areas in the Vicinity of Oldbury Site