Hunterston 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

Hunterston A Site
West Kilbride
Ayrshire
KA23 9RA

Hunterston A Site

Hunterston A Site (hereafter referred to as the Site) is a twin Magnox station undergoing decommissioning, and is located in North Ayrshire, western Scotland. It is situated on a promontory on the coast of the Firth of Clyde, from which it drew cooling water supplies during its operational phase. EDF's Hunterston B power station is situated immediately to the north. The site covers an area of 65 hectares.[1] The following describes the key dates for the site:

- Construction of the site commenced in 1957, and electricity was first supplied to the grid in 1964.[1]
- The site ceased electricity generation in 1990 after 26 years of operation.[1]
- Defuelling of the reactors was completed by 1995.[1]
- The Care and Maintenance Preparations (C&MP) phase of the decommissioning process is scheduled to be completed in 2022 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 2080.[2]

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

Site End State Assumption

The planned end state for Hunterston 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 Hunterston A Site

SEA Objective	Environmental Baseline Data	References
Air Quality & Dust	*Radioactive Discharges* • Aerial discharges of radioactivity have reduced since the cessation of generation. The reactor cores 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. *Conventional Discharges* • Vehicles and diesel generators 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]	*1. DEFRA (2014) Air Quality, http://aqma.defra.gov.uk/aqma/list.php*

Global Climate Change and Energy	• 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). The use of this energy has resulted in indirect CO_2 emissions, due to the mixed generation used in the UK. • The site auxiliary equipment for the provision of emergency backup power 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. • A number of vehicles are based at the site, which have associated carbon emissions. The District Survey, which uses a number of vehicles, is carried out jointly with Hunterston B Station. Indirect carbon emissions originate from the use of hire vehicles by site personnel when travelling on company business in addition. • 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. *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 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. This is due to the low lying coastal nature of the site. • The C&M phase at the site, during which the reactors will be in Safestore, is scheduled to last until 2070, a couple of decades prior to the 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] As such, the site will likely be cleared before the full effects of a worst case scenario are projected to be realised, but sea levels nonetheless could potentially be rising significantly during the site's C&M and FSC phases. The site is situated at an average elevation of approximately 4.5 m above Ordnance Datum (mAOD), and is protected from coastal erosion by engineered rock and crushed concrete bunds that were built during the construction phase. • 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.	*1. IPCC (2007) Projections of Future Change in Climate, http://www.ipcc.ch/publications_and_data/ar4/wg1/en/spmsspm-projections-of.html*

Biodiversity, Flora and Fauna	• The site is situated in a predominantly rural setting, and has 1 designated area in close proximity.
	• This designated area is:
	  ○ Portencross Woods Site of Special Scientific Interest (SSSI). (*See Figure 1*)
	  ○ The Kames Bay and Ballochmartin Bay SSSIs which are located on the island of Great Cumbrae in Largs bay are also located in close proximity to the site, but are separated from site by the Fairlie Roads (a deep water channel in the Firth of Clyde).[1]
	• The site Biodiversity Action Plan considers how the site manages its impacts on local ecosystems. This document is reviewed and updated on a regular basis.
		1. Hunterston A Environmental Impact Assessment Baseline (EIAB)

Landscape and Visual	• The site is located on the Ayrshire coast opposite the islands of Great and Little Cumbrae.[1] • The area in which the site is situated is characterised by raised beach coast, with craggy escarpments set back from the existing coastline. Agricultural and woodland land uses dominate the surrounding area, whilst both of the Isles of Cumbrae are characterised by grazing and rough moorland. • The Hunterston sites are visible at medium-long distances from multiple locations in the area, including the coastline to the north and south and the Isles of Cumbrae and Bute. • The site is partially visible from areas of Clyde Muirshiel Regional Park which is situated to the east and northeast, although Goldenberry Hill provides a natural barrier when the promontory is viewed from a number of angles to the west.	*1. Ordnance Survey (2011) 1:25,000 Sheet 341, Greenock, Millport and Largs* *2. Hunterston A Environmental Impact Assessment Baseline (EIAB)*
Archaeology & Cultural Heritage	• There are 2 Scheduled Ancient Monuments (of which are also Listed Buildings) in close proximity to the site; Hunterston House and Portencross Castle. • There are 2 entries in the draft Register of Landscapes, Parks and Gardens of Special Historic Interest; Hunterston House and Portencross Castle, as listed by Scottish Natural Heritage, near to the site.	*1. Hunterston A Environmental Impact Assessment Baseline (EIAB)*

Groundwater, Geology and Soils	• Made ground, consisting primarily of reworked Till and gravels, underlies much of the site itself, and in particular the Foreshore Reclaimed Area (FRA), which was formed from excavated material produced during the station's construction. The natural superficial deposits in the Hunterston A Site locality consist of Pleistocene age Raised Beach Deposits, consisting of sands with silt and peat lenses. This is underlain by Post Glacial Deposits, consisting of sands and pebbles, and the deepest superficial deposit is the Glacial Till, consisting of sandy, silty clay with pebbles and boulders.[1] • The bedrock at the site consists of Devonian age Upper and Lower Old Red Sandstone. The thick (400m+) Upper unit of this facies consists of consists of medium-grained sandstones containing bands of siltstone, marl and conglomerate. The underlying Lower unit consists of sandstones and conglomerates. Carboniferous to Tertiary-age igneous intrusions, consisting of dolerite dykes, felsite sills and basaltic-tuff volcanic plugs are found in the bedrock at several locations on and near the site.[2] • Groundwater levels at the site are reported to lie between 0.5 – 1 metre below the surface level. The direction of flow generally follows the slope of the land (northwest and west) towards the sea.[1] • There are no significant groundwater abstractions currently in the Hunterston area.[1] • The soils in the area surrounding the site are classified as Peaty Podzols and Brown Forest Soils.[2] *Land Quality* • There is radioactive land contamination at the site, resulting primarily from historical (during the generation phase) events. The site is considered to have only very minor non-radiological land quality issues. • Radiological contamination is associated with a number of sources at the site, but the main land quality issue is in the CP7 Compound and associated drainage. By 2010, an enhanced regime of maintenance and clean-out of catch pits on the existing drainage system had been instigated to minimise the risk of further discharges to the foreshore. Following an extensive options appraisal, a decision was taken in November 2011 to contain the land contamination in situ for the foreseeable future (until FSC). The in-situ containment uses a combination of drainage diversion, a slurry wall and impermeable cap. This work has now been completed. • Minor contamination has been detected at several other locations including (but not limited to) between Reactor 2 and the pond, roadway north of AETP (resin trench), south of Sludge Drying Beds, Siphon Seal Land Shaft area, south east corner of Reactor 1, temporary overland active effluent discharge line and the pond and its downstream infrastructure such as the AETP and effluent line.[2]	*1. Hunterston A Environmental Impact Assessment Baseline (EIAB)* *2. Golder Associates (2001) Hydrogeology and Radioactive Contaminated Ground: Desk Study and Initial Ground Investigation Design* *3. Golder Associates (2009) Interpretative Report on the VLLW Disposal Area, Construction Waste Disposal Area and Spoil Mound*

	• The VLLW Disposal Area consists of a series of 5 discrete, sealed pits constructed within the made ground of the Foreshore Reclaimed Area, into which solid VLLW was disposed under an authorisation in the 1970s / 80s. A 2005 survey identified surface contamination in the disposal area. A quantitative risk assessment to human health was carried out for dose rates relating to this surface contamination, and the contents of the VLLW pits, which were found to be sufficiently low to demonstrate risk parity with respect to the delicensing criteria.[3] Due to stakeholder concerns an options appraisal study was carried out subsequent to the risk assessment in order to select a remediation strategy. Improved containment in the form of a cap was selected and implemented, and the need to excavate and transfer the contents either during C&MP or FSC was therefore eliminated. • There are no major issues with non-radiological contamination at the site, and only trace amounts of hydrocarbons have been found in groundwater, and very minor hydrocarbon staining is evident on some areas of hardstanding.[1] • Extensive investigation and characterisation works at the site have been undertaken in recent years, and monitoring of land quality issues is on-going.	
Surface Water Resources and Quality	• The nearest water body to the site is the Firth of Clyde. Burn Gill, which drains Goldenberry Hill, flows into the Firth of Clyde in close proximity to the site, and a minor stream that drains the site and adjacent fields, flows over the intertidal zone on the shoreline. • Water quality in the part of the Clyde adjacent to the site is classified as 'excellent' (Class A) under the Scottish Environmental Protection Agency's Coastal Scheme. • Aqueous effluent is discharged via the Hunterston B station cooling water outfall to the Firth of Clyde, the effluent is diluted by the B station cooling discharge waters. • The main non-radioactive discharges from the site are treated sewage effluent from the site sewage treatment facility and surface water drainage from building roofs and verges, some ground areas and some cable pits. Surface water is collected in the Hunterston B station surface water pump house and then discharged via Hunterston A site cooling water outfall into the Firth of Clyde.[1] The discharge license belongs to Hunterston B station.	*Hunterston A Environmental Impact Assessment Baseline (EIAB)*

Waste	• 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 exempt (for permitted landfill), size reduce, incinerate or metal melt, in order to reduce LLWR consignments, are actively sought. • Intermediate Level Waste (ILW)[c] 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 given that the ILW store is 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. • The Solid Active Waste Building (SAWB) contains several waste streams that are unique to Hunterston. This is because the fuel elements employed at the site incorporated a graphite sleeve. This resulted in a quantity of graphite Fuel Element Debris (FED) waste being produced after the elements were discharged from the reactors and the graphite was separated, All of this material was transferred to the Bunkers 2-5 in the SAWB.[1] • In addition to the graphite, several other waste items (consisting of highly activated metals such as the Fuel Support Members) that were employed as part of the unique bottom-loading design of the Hunterston A reactors were discharged to Bunkers 1-5 in addition. • Magnox FED was transferred to Bunker 1 in the SAWB.[1] *Site Waste Strategy Baseline* • The Scottish Government published its Higher Activity Radioactive Waste Policy in 2011 (HAW '11), which states that it's intention is '*to support long-term near surface, near site storage facilities so that the Waste is monitorable and retrievable and the need for transporting it over long distances is minimal'*	*1. Magnox Ltd. (2011) Hunterston A Site IWS* *2. Scottish Government (2011) Scotland's Higher Activity Waste Policy 2011* *3. Walters S (2009) Fuel Element Debris Status Overview*

[c] *In HAW '11, anything which is not classified as LLW (which includes ILW) is referred to as 'Higher Activity Waste (HAW)'. The term ILW is generally used in Magnox company documents for Scottish sites however, in order to achieve consistency across the company and is also used in this document. The terms ILW and HAW should be treated as analogous in this document.*

	• Waste strategy at the site will conform to this policy instrument. • 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. However, the use of these containers will not be implemented at the site, because Radioactive Waste Management Directorate (RWMD) boxes and cementitious encapsulant already comprise the baseline for the immobilisation of both wet and solid ILW waste streams. • Once encapsulation of the solid and wet ILW commences at the site, the packages will be emplaced in the fully shielded ILW Store. • The Strategic ILW Review carried out at the site in 2010 identified that on-site disposal of graphite waste (the review included a feasibility assessment of on-site disposal) and dissolution of Magnox Fuel Element Debris was BPEO. • The Graphite Pathfinder Project, which followed on from the Strategic ILW Review aimed to design and implement an engineered subsurface cell at the site for the disposal of graphite waste. This project was however terminated in 2011 in favour of the baseline plan of emplacing encapsulated waste packages in the ILW Store and seeking a final route for those packages which is in line with Scottish Government policy. • Plans for the dissolution of Magnox Fuel Element Debris have been also been dropped in favour encapsulation and emplacement in the ILW Store.	
Traffic and Transport	• The site access road connects to the A78 trunk road. This road links to the national motorway network at Jct. 29 M8 via the A760 and A737 to the north, or via Jct. 8 M77 via the A71 and A77 to the south. • The nearest railhead to the site is located adjacent to the Hunterston Ore Terminal, on the Ayrshire Coast Line. This is a fully operational line that operates regular passenger and freight services. The nearest passenger rail stations are located at either West Kilbride or Fairlie.	*1. Ordnance Survey (2011) 1:25,000 Sheet 341, Greenock, Millport and Largs*
Land Use and Material Assets	• The site occupies an area of 65 hectares. • The site consists of two reactor buildings, an ILW store, a ponds complex, the Solid Active Waste Bunker, charge machine maintenance building, various ancillary buildings, access roads, grassy areas, and areas of hardstanding. • The surrounding area is rural and semi-rural in nature and is used for agricultural, recreational and industrial purposes.	*1. Ordnance Survey (2011) 1:25,000 Sheet 341, Greenock, Millport and Largs* *2. Magnox Ltd. (2011)*

	• Notable land uses in proximity to the site include the Hunterston Estate (incorporating Hunterston Castle), and the privately owned Little Cumbrae island across the Fairlie Roads. There are no official Public Rights of Way near the site, [1] (partly due to the Scottish Right to Roam laws) but public access to the coastline in the Portencross SSSI is gained via the site access road. • 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 boilers, the gas ducts, the SPVs, and as rebar incorporated into large concrete structures such as the bioshield.[2] • A proportion of this recyclable metal will or has been made available for recycling during the C&MP phase, such as from general building dismantling. • The majority of the remaining recyclable metal on site is incorporated into the boilers, the primary circuit, the bioshield and the SPVs, and 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 be managed in accordance with HAW '11), but the remainder will be LLW or exempt, and as such eligible for recycling and reuse within or outwith the nuclear industry.[2] • 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.[2]	*Hunterston A IWS*
Noise and Vibration	• Noise and vibration originate from a number of sources at the site. • Noise monitoring data gathered at local receptors in 2010 (Minimum Daytime Noise Levels L_{Aeq} dB): ○ Goldenberry (500 metres from site) – 58.5 ○ Campbelton Farm (1400 metres from site) – 41.5 ○ Thirdpart (1500 metres from site) – 46.2 ○ North Kilruskin (2600 metres from site) – 57.9 ○ Hunterston House (1300 metres from site) – 37.9 ○ Glenside (3100 metres from site) – 54 • The criteria for the significance of noise are the proximity of noise sources to the receptors, and the presence of any screening /	*Hunterston A Environmental Impact Assessment Baseline (EIAB)*

	nature of the ground between the source and the receptor. As with visual impact, Goldenberry Hill provides an effective natural barrier for noise impact to receptors to the west of site. • Since the cessation of generation the profile of noise and vibration from the site has changed, and there are now no significant noise sources on site and no nuisance noise.	

Table 2: Environmental Discharge Data for Baseline Years 2012/13 for Hunterston A Site

In addition to the baseline information, which describes the permanent, semi-permanent and inherent features and impacts of Hunterston 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
Air Quality & Dust	• Total Alpha discharged to air from the site was below the reporting threshold in 2012 and 2013. • Total Beta and Gamma (excluding Tritium) discharges to air in 2012 were 8.16E-05 TBq and 8.40E-05 TBq in 2013. • Total Tritium discharges to air in 2012 were 8.60E-04 TBq reducing to 8.40E-04 TBq in 2013.[1] The total dose from all pathways and sources of radiation is assessed to have been 0.032 mSv in 2012, which was approximately 3 per cent of the dose limit, and down from 0.050 mSv in 2011. The dose was mainly from direct radiation from the site, and the most exposed people were the prenatal children of local inhabitants. The decrease in total dose in recent years reflected a downward trend in the reported direct radiation.[2]	• Discharges of radioactivity to the atmosphere decreased significantly upon the cessation of generation. • As decommissioning progresses through the C&MP phase the trend will be for discharges to continue to remain steady or 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. • FSC will result in a temporary increase in aerial discharges of	*1.Magnox Ltd Performance Indicator Report 2012 and 2013** *2.CEFAS (Centre for Environment, Fisheries and Aquaculture Science) (2012) Radioactivity in Food and the Environment 18*

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

		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 disposal (in accordance with HAW '11) will result in periodic 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, 5698 MWh of energy was used at the site, comparing to 5807 MWh in 2013. • Direct CO_2 and other greenhouse gas emissions generated from the combustion plant and vehicles in 2012 were 2.5E-05 megatonnes, and 2.0E-05 megatonnes in 2013. • Indirect CO_2 and other greenhouse gas emissions generated from energy consumption was 3.4E-03 in 2012 increasing to 3.43E-03 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 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 Ltd Performance Indicator Reports 2012 and 2013**

Surface Water Resources and Quality	• In 2012 total Alpha liquid discharges were 2.54E-04TBq and 1.10E-04 TBq in 2013. • Total Beta Gamma (excluding Tritium) liquid discharges were 4.86E-02TBq in 2012 and 1.90E-03 TBq in 2013. • Total Tritium liquid discharges were 6.98E-03TBq in 2012 and 2.90E-03 TBq in 2013.[1] Authorised liquid discharges are made to the Firth of Clyde via the sites cooling water outfall. The main part of the aquatic monitoring programme consists of sampling of fish and shellfish and the measurement of gamma dose rates on the foreshore. Samples of sediment, seawater and seaweed are analysed as environmental indicator materials. Caesium-137 concentrations in sediment have remained low over the last decade. Gamma dose rates were generally similar to those in 2011.[2]	• Discharges of aqueous radioactivity decreased 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 as the retrieval, treatment and passivation of wastes, and decontamination and dewatering of the pond 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. Detailed estimates for the discharges due to this have not been made, however.	*1.Magnox Ltd Performance Indicator Reports 2012 and 2013** *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 178.6 m^3 of LLW from routine decommissioning activities which was reused, recycled or disposed of. • Of this total, 1.4 m^3 metal LLW was recycled, 21.2 m^3 was treated and 156 m^3 was disposed of to the LLWR.[1] • In 2013 the site produced 0m^3 of LLW.	• 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 these levels will fall significantly.	*1. Magnox Ltd Performance Indicator Reports 2012 and 2013*

	• In 2012 the site produced 516.3 tonnes of inert waste from decommissioning activities, of which 95% of this total was reused or recycled.[1] • 384.5 tonnes of non-hazardous waste was produced from decommissioning activities, of which 87% of this total was reused or recycled.[1] • In 2013 the site produced 305.6 tonnes of inert waste from decommissioning activities, of which 100% of this total was reused or recycled.[1] • 641.6 tonnes of non-hazardous waste was produced from decommissioning activities, of which 96% of this total was reused or recycled.[1]		

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

Table 3: Additional Data for baseline Year 2012/13 for Hunterston A Site

SEA Objective	Additional Data	Changes in Additional Parameters	References
Surface Water Resources and Quality	• In 2012 the site consumed 10811 m^3 of mains water, and 11,222 m^3 in 2013.	• Water consumption may increase during C&MP in association with the construction and operation of ILW facilities, but should drop to minimal levels once the site has entered C&M.	*Magnox Ltd Performance Indicator Reports 2012 and 2013**
Economy, Society and Skills	• The site is located in a semi-rural area of North Ayrshire [1]. • The major settlements within 10km of the site are West Kilbride and Ardrossan to the southwest, Fairlie and Largs to the north, Dalry to the east, and Millport (Isle of Cumbrae) to the northwest, as well as a number of small villages and other settlements.[1] • The population of North Ayrshire was 136900 during 2013 [2]. • North Ayrshire had a working population of 61700 during 2013.[2] • The dominant working sectors in North Ayrshire during 2013 were Services (29000, 78.9 %) and Public Admin, Education and Health and Distribution (11400, 30.9%). • Employment in the Electricity, Gas and Water Supply industry in North Ayrshire was not listed, but the effect of employment at the site is likely to be low against the total working population of this district. • In 2013 (23500, 28.3 %) of the population were employed to	• The number of personnel employed on site will decrease significantly after the completion of C&MP. • Personnel numbers are likely to increase by approximately 250 over the next few years to support additional project work.	*1. Ordnance Survey (2011) 1:25,000 Sheet 341, Greenock, Millport and Largs* *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*

	NVQ4 level or above. • North Ayrshire is not subject to Convergence Funding from the EU, or other external assistance (the Isle of Arran [North Ayrshire], when considered as part of the Highlands and Islands EU Region, is however classified as a Phasing-Out Region of Convergence Funding).[3] • The number of personnel employed on site will decrease significantly after the completion of C&MP.		
Traffic and Transport	• The Annual Average Daily Traffic (AADT) from all traffic movements on the A78, approximately 1km to the south of the junction with the site access road, from recent measurements was 3487, of which 141 were Heavy Goods Vehicle (HGV) movements. • On the A78 to the north of the site, close to the junction with the A760, the traffic movements from recent measurements was 9104, of which 365 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.	• 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. long term cladding of the reactor buildings for C&M (as opposed to the temporary weather shielding which is currently in place) 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.	*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 Hunterston A Site