

Strategic Environmental Assessment

Site Specific Baseline Dounreay

March 2011

An Environmental and Sustainability Report was published by the NDA as part of the Strategic Environmental Assessment (SEA) of the NDA Strategy. It was produced in compliance with the SEA Directive (2001/42/EC) and transposing regulations (S.I.1633, 2004).

The following pages contain specific baseline information, and maps, for the Dounreay site. This information was used in the preparation of the Environmental and Sustainability Report and regularly updated information will be used as part of monitoring measures to identify trends in potential environmental impacts. A short introduction is followed by a table containing the current baseline information, organised by sustainability headings. The final section includes information about future developments and environmental issues.

The NDA and DSRL are committed to openly sharing information and making it accessible to all. In making this non-confidential environmental and sustainability information available we believe that it will provide a useful ongoing resource to the general public and stakeholders.

Site Specific Baseline for Dounreay

Dounreay

Dounreay nuclear facility is located in Caithness and covers an area of 54 hectares. Construction of the site began in 1955, and all reactor and processing operations ceased in 2006. The site is currently undergoing decommissioning with a proposed Interim End Point of 2038 (LTP, 2011). The programme involves the removal of major hazards and construction of new waste treatment facilities. The programme also involves the coordinated removal of the majority of the buildings, conditioning of low hazard wastes for on-site interim storage and the planned disposal of Low Level Waste (LLW) in a new off-site facility. Interim storage of conditioned Intermediate Level Waste (ILW) and packaged spent fuel and nuclear material will continue until 2050. It is the intention for the liabilities to then be transferred off-site, with the removal of conditioned ILW for permanent disposal in a national repository, although this position may change depending on the outcome of consultation on the current Scottish Government's Policy on higher activity waste. With this and store demolition complete by 2078, final care, surveillance and site closure is therefore anticipated to commence in 2078 with completion up to 2300. More information is available from www.dounreay.com.

Site End State Assumption

The preferred end state for the Dounreay facility is for the site to be restored to a point when the site would be de-licensed by 2300, the Final End Point. Residual contamination, site infrastructure, and foundations will be left in-situ unless there is an over-riding safety, regulatory or de-licensing requirement.

Current Environmental Baseline

Table 2: Baseline Data across all topics for Dounreay

SEA Objective	Key Environmental Baseline	Source
Air Quality	<p>Operations on the Dounreay site are such that the discharges of benzene, NO₂ and PM10 will be comfortably below the relevant UK air quality strategy objectives.</p> <p>SEPA has granted DSRL an authorisation under the Radioactive Substances Act 1993 (as amended). Dounreay discharges gaseous radioactive wastes to the atmosphere via numerous stacks that are grouped into 6 locational groupings. As part of this authorisation, SEPA has placed rolling 12-month limits on the activity that can be discharged according to the radionuclide or group of radionuclides in the discharge.</p>	<p>DSRL (2010) <i>The December 2010 Monthly Report of Discharges in Compliance with the RSA Authorisations Assurance/RSA/Dec10</i></p>

	<p>For the rolling 12-month period to the end of December 2010, the highest alpha, beta and tritium aerial discharges from the site was via the grouping known as the FCA North and South Stacks. The alpha, beta and tritium discharges were very small fractions of the authorised discharge limit.</p>	
<p>Global Climate Change and Energy</p>	<p>From the 1st September 2010 to 28th February 2011, the operations at Dounreay, resulted in the release of 16128 tonnes of CO₂ indirectly through the consumption of 20.6 GWh (74 TJ) of electricity and directly with the consumption of both heavy fuel oil (61 TJ) and kerosene (8.8 TJ). During this period Dounreay consumed a total of 144 TJ of energy.</p> <p>The majority of the Dounreay site is located approximately 20 m Above Ordnance Datum (AOD). Studies have been conducted to consider rates of coastal erosion, in particular, in relation to the coast line adjacent to the Intermediate Level Waste (ILW) Shaft. Coastline recession rates of around 1-2 m in 200 to 300 years have been estimated, taking into account sea level rise. The Shaft and the existing Low Level Waste (LLW) disposal facility will have their waste inventories retrieved within the next few decades such that there will be no short-term operational issues associated with coastal erosion over this period.</p> <p>In the longer term, parts of the site will be more susceptible to sea level rise and coastal erosion over timescales of several hundred to thousands of years, if no additional mitigation measures are applied. In practice, such issues have been considered within the development of site end state options and the development of the proposed new Dounreay LLW repository.</p>	<p>NDA (2005) <i>Dounreay EAPINS Project Questionnaire</i>;</p> <p>Nexia Solutions (2008) <i>Position paper on climate and landscape change effects at NDA sites</i>;</p> <p>NDA (2008) <i>Site Operator Input</i></p>
<p>Biodiversity, Flora and Fauna</p>	<p>There are no designated sites found within the site. There are, however, Sites of Special Scientific Interest (SSSIs), Special Areas of Conservation (SACs), Special Protection Areas (SPAs), Ramsar and Ancient Woodland Inventory (AWI) sites in the wider area. SNH recently consulted on proposed extensions to the North Caithness Cliffs SPA. As of the 25th September 2009, the SPA extended 2km into the marine environment and provided additional habitat protection for Annex I listed protected species including the Peregrine Falcon. It also supports Common Guillemot, Razorbill, Black-legged Kittiwake and Atlantic Puffin that result in a total population of approximately 110,000 individual seabirds.</p> <p>Part of the Sandside Bay SSSI is within land owned by the NDA and leased to a farming tenant. It is notable for its dunes and links habitat and coastal vegetation communities.</p> <p>A number of protected species were recorded on, or next to the Site, including Otters, Pipistrelle Bats (both European Protected species under Annex IV of the Habitats Directive) and breeding birds, such as Arctic Tern. Species of flora including the Oyster Plant, which is nationally uncommon, are found on the Dounreay beach and Scottish Primrose is also found in the area to the east of the Site.</p> <p>A summary of bird species found in the area include Fieldfare; Redwing; Bunting; Snow Bunting; Hen Harrier; Merlin; Whooper Swan and Whimbrel wintering birds (all listed on schedule 1 of the Wildlife and Countryside Act 1981 and Natural Conservation (Scotland) Act 2004).</p> <p>In 2010, an area of approximately 25,000m² on the Dounreay site was identified for a bee meadow. The north coast of Scotland is home to some of the rarest species of bee in the UK, including the Great Yellow Bumblebee and the UK BAP priority species, Moss Carder Bee. The Bumble Bee Conservation Trust advised the Site that any land providing foraging in the Dounreay area would add a link to other bee foraging areas around the north coast. Wild flowers were encouraged in the meadow, supplemented by a specific mowing regime that would encourage the bees. A number of bees recorded during 2010 included the rare Great Yellow, White Tailed, Common Carder, Moss Carder, Garden, Broken Belted and Cuckoo Bees.</p> <p>A holistic approach to biodiversity should recognise that biodiversity is more than just the reflection of designated sites. It is an interrelated network of habitats and species, of which designated sites and species are those that are most fragile or rare and require the highest degree of protection. Many non-designated species are found in the area including common grasses and rabbits. Scottish Natural Heritage highlights that the Natura 2000 network of sites in Scotland is nearly complete, but that additional sites, particularly within the marine environment may be identified in the future. A Biodiversity Action Plan is being prepared for Dounreay.</p>	<p>UKAEA (2002) <i>Dounreay Environmental Statement</i></p> <p>UKAEA (2006) <i>LLW Facilities Environmental Statement</i>; Environment Agency (2002) <i>Impact Assessment of Ionising Radiation on Wildlife</i>; SNH (2009) [http://www.snh.org.uk/about/directives/NCCB433690.pdf]; SNH (2009) [http://www.snh.org.uk/pdfs/about/directives/Naturabooklet.pdf]</p> <p><i>Citation for Special Protection Area (SPA) East Caithness Cliffs</i> [http://www.snh.org.uk/about/directives/eastcaithB433704.pdf]; SNH (2009)</p>

	<p>A generic assessment on the impacts of the radioactive discharges on wildlife from the UK's nuclear facilities concluded that the chronic dose rate guideline was not exceeded for any of the assessed marine or terrestrial organisms. Furthermore, the estimated doses to wildlife were below the level at which the effects could be observed.</p> <p>The attached map highlights the context of the nuclear licensed site and its immediate surroundings. The area shown in the figure does not attempt to identify all potential designated sites that may be affected by activities associated with the UK Nuclear Industry LLW Strategy. Rather, it attempts to strike a balance between highlighting those sites that are in the vicinity of the nuclear licensed site between different topic themes. Hence, more expansive coverage would reduce the visibility of designated Scheduled Ancient Monuments which, by their nature, have significantly smaller coverage than ecological based designated areas.</p>	
<p>Landscape and Visual</p>	<p>The Dounreay nuclear site divides a strip of 'Open, Intensive Farmland' landscape type, which is situated between the north coast of Caithness and the main coast road, the A836.</p> <p>The region is generally fairly flat, characterised by open rolling countryside with hills west and south of the study area. Dramatic views of Dounreay are gained from a 1.5 km elevated stretch of road west of Sandside Bay, and the Site is generally a significantly noticeable feature of the visual landscape.</p> <p>Dwellings at Upper Dounreay closer to the Site have views of Dounreay as do stretches of the A836 and flanking dwellings, for example Buldoo. The Site is also visible from part of the nearby village of Reay.</p> <p>Landscaping of the restored Site by the Interim End Point is planned as part of achieving the Site's end state.</p>	<p>UKAEA (2006) <i>Dounreay Environmental Statement</i></p> <p>UKAEA (2007) <i>Results of the Dounreay Site End State Consultation</i></p>
<p>Cultural Heritage</p>	<p>The wider area around Dounreay contains many actual elements of the prehistoric and recent past, ranging from Neolithic chambered cairns, Bronze Age burial mounds, stone circles, field systems and settlements to medieval tower houses and post-medieval farmsteads and settlements. There are 3 scheduled monuments on NDA owned land and all are located outwith the licensed site. They are; Dounreay Castle, Cnoc Urray and Cnoc na h'Uiseig.</p> <p>The 16th Century Dounreay castle, an L-shaped tower house, is now a substantial ruin on the edge of the foreshore beside PFR. In the 19th century an adjoining farm cottage was added to the East wall. The remains of an Iron Age broch, Cnoc Urray, are located c350m South West of the site. The chambered cairn, Cnoc na h'Uiseig, lies c500m North East of the site.</p> <p>The MoD built an airfield at Dounreay during the 2nd World War, but it was mothballed on completion in April 1944. Apart from short periods of use by the Navy as HMS Tern II and later, when its accommodation blocks were used as a camp for displaced Polish servicemen, it remained essentially unused until 1955. The blocks were used to house circa 2,000 Dounreay construction workers from 1955 to 1960.</p> <p>The Dounreay nuclear site overlies the western part of the airfield and the remaining runway was used for a chartered air service throughout the 1970s and 1980s.</p> <p>Following a period of stakeholder consultation, the Dounreay heritage strategy was issued in September 2010. A combination of loss of cultural value due to essential decommissioning activities, radiological risk and the lack of public access, has led NDA/DSRL to conclude that the retention of the DFR sphere or any other facility, would not deliver significant benefits on a local or national scale.</p> <p>A Heritage Officer has been appointed to co-ordinate the measures needed to record, preserve and celebrate Dounreay's cultural heritage. An advisory panel with external experts from local and national heritage bodies has been formed. An agreement has been set up with the National Museums Scotland and Caithness Horizons for donating objects of heritage significance for conservation and public display.</p>	<p>DSRL (2009) <i>Dounreay Heritage Strategy: Delivering a cultural legacy through decommissioning (SES(09)P007)</i></p>

<p>Groundwater, Geology and Soils</p>	<p>Dounreay is underlain by rocks of the Caithness Flagstone Formation. These are dominantly grey siltstones with minor sandstones and limestones. The rocks are indurated with very low porosity. Overlying Quaternary deposits are generally <3m thick. No geological features of special importance have been identified. The solid strata and overlying deposits at the Site are typical of the much wider area and as such, there are no scarce or locally restricted deposits of note.</p> <p>The Scottish Soil Framework indicates that there are a number of soil types in the area, notably mineral gleys.</p> <p>Permeability is generally low and associated with fracturing, although the rocks are capable of yielding small amounts of water to wells (~10 m³/d). In common with the rest of mainland Scotland, the rocks are designated a groundwater body in the context of the Water Framework Directive, and a drinking water protected area. The groundwater quality is considered to be generally good.</p>	<p>UKAEA (2004) <i>Dounreay Environmental Statement</i>;</p> <p>Scottish Government (2009) <i>The Scottish Soil Framework</i>;</p> <p>Water Environment (Drinking Water Protected Areas) (Scotland) Order 2007</p>																				
<p>Surface Water Resources and Quality</p>	<p>The Dounreay Burn, also known as the Mill Lade, flows through the Site and is considered as being of good quality status in accordance with the Water Framework Directive. The coastal waters around Dounreay are also considered to be of high quality status in relation to the Water Framework Directive. Seawater and sediment samples are collected and analysed, and support this statement.</p> <p>DSRL have been granted licences for non-radioactive discharges to be made to the North Atlantic Ocean via 6 outfalls at, or very close to, the low water mark. SEPA have also granted an authorisation under the Radioactive Substances Act 1993 (as amended) to discharge low level aqueous radioactive wastes to the North Atlantic Ocean from a single discharge point 600 metres off-shore – The Liquid Metal Disposal Plant and other facilities feed this discharge point. During 2010 the Liquid Metal Disposal Plant did not operate and did not contribute to the 2010 aqueous discharges from the Site.</p> <p>As part of the authorisation, SEPA has placed rolling 12-month limits on the radioactivity levels that can be discharged according to the radionuclides present in the discharge. For the rolling 12-month period to the end of December 2010 the aqueous liquid discharges were all generally less than 1% of the authorised limits, with the exception of Tritium (1.7%) and Strontium-90 (4%).</p> <p>The annual water consumption for 2010 was 142,528 m³</p>	<p>DSRL (2010) <i>Dounreay Supplementary Environmental Monitoring Programme Data</i></p> <p>DSRL (2010) <i>The December 2010 Monthly Report of Discharges in Compliance with the RSA Authorisations Assurance/RSA/Dec10</i></p> <p>DSRL (2010) <i>SPRI 2010</i></p>																				
<p>Waste</p>	<p>Dounreay is anticipated to generate some 6,200 m³ of (in-situ volume) Intermediate Level Waste (ILW) during decommissioning. Some 3,020 m³ (in-situ volume) is in storage at the Site (as of 01/04/08), of which about 10% has already been conditioned and packaged.</p> <p>It is anticipated that there will be a total of about 75,000 m³ (in-situ volume) of LLW, including liquids, arising from decommissioning and operations.</p> <p>Non-radioactive wastes generated on the Dounreay site were re-used, recycled and disposed during 2010 (1 January to 31 December 2010) as follows:</p> <table border="1" data-bbox="343 1451 1233 1608"> <thead> <tr> <th rowspan="2"></th> <th colspan="3">Non Haz</th> <th colspan="3">HAZ</th> </tr> <tr> <th>Reuse</th> <th>Recycle</th> <th>Landfill</th> <th>Reuse</th> <th>Recycle</th> <th>Landfill</th> </tr> </thead> <tbody> <tr> <td>Totals (Te)</td> <td>21205</td> <td>600</td> <td>588</td> <td>0</td> <td>82</td> <td>109</td> </tr> </tbody> </table> <p>Note: some of the re-used waste was previously stored under Waste Management Licence No WML/N/0220022.</p> <p>The re-used wastes (spoil, rock, stones, brick, concrete, tar etc) have been, and will be, used to form hard standings and new access roads at or near the Dounreay site.</p> <p>Approximately 17,000 m³ of soil contaminated by radioactive material requiring treatment as LLW is anticipated to be generated during decommissioning. Additionally, some 1,000 m³ of soil contaminated with non-radioactive material is anticipated to be generated during decommissioning. A vertical shaft was built at Dounreay in the 1950s to remove rock spoil during excavation of a sub-sea tunnel for the site's effluent discharge pipes. In 1958, it was authorised by the Government as a disposal facility for what today is known as Intermediate</p>		Non Haz			HAZ			Reuse	Recycle	Landfill	Reuse	Recycle	Landfill	Totals (Te)	21205	600	588	0	82	109	<p>NDA (2008) <i>Environment Agency Nuclear Sector Plan Data Reporting</i>;</p> <p>NDA (2007) <i>Dounreay 2006/07 IWS</i></p> <p>SEPA (2009) http://gis.sepa.org.uk/rbmp/pdf/150360.pdf;</p> <p>DSRL (2010) <i>SPRI 2010</i></p>
	Non Haz			HAZ																		
	Reuse	Recycle	Landfill	Reuse	Recycle	Landfill																
Totals (Te)	21205	600	588	0	82	109																

	<p>Level Waste (ILW). More than 11,000 disposals of waste occurred until 1977 when there was an explosion, thought to be caused by the build up of hydrogen gas due to the reaction between water in the shaft and sodium in the waste.</p> <p>By the late 1990s, advances in technology lead to a decision to empty the shaft. The first stage of this process was the isolation of the shaft from surrounding groundwater, which has now been completed.</p> <p>Radioactive fuel fragments have been released into the environment from the historic processing of radioactive material around Dounreay. These have settled in offshore sediments and a small number of particles have been washed ashore on to local beaches. Arrangements are in place to monitor for these fuel fragments and recover those which are found.</p>	
<p>Economy, Society and Skills</p>	<p>In 2009, the population of Caithness, Sutherland and Ester Ross was 51,705 people, representing around 24% of the total population of the Highlands.</p> <p>Caithness is made up of 3 Highland Council Areas: Thurso; Wick and Landward Caithness. In 2009, the population of Caithness was 25,199, 56% of which was concentrated in the 2 main towns: Thurso (7344) and Wick (6676). Approximately 11,900 people were in employment in Caithness,</p> <p>The Caithness area is well served with schools: 24 primary schools (though this is currently under review) and 2 secondary schools. Higher and further education services are available in the area, primarily through North Highland College (a partner college of the University of the Highlands and Islands). In 2001, 15.3% of people had degree qualifications in the Caithness area, which is below the average figure for Highland Council area (19.6%) and Scotland (19.5%). The percentage of people with no qualifications is slightly higher than the local authority area and Scottish figures (36.9% compared with 32.6% and 33.2% respectively). There is major investment in education facilities (Centre for Energy & Environment; Engineering Skills Centre and a new high school in Wick) and training programmes (STEM; Workforce Transition) in the area.</p> <p>In March 2011, the number of employees at Dounreay was 932 DSRL staff and some 1,210 contractors with access to the Site.</p> <p>Approximately one in every 5 jobs in Caithness is located at Dounreay and a baseline study undertaken in 2006 estimated that Dounreay supports one in every 4 jobs in Caithness. However, including all indirect employment, it is estimated that as many as one in 3 jobs in Caithness and North Sutherland depends on the decommissioning activities at Dounreay. It is estimated that currently £80 million is injected each year into the local economy as a result of the decommissioning programme. Therefore, the closure of Dounreay will result in major social and economic challenges for the area.</p>	<p>The Highland Council (www.highland.gov.uk)</p> <p>DSRL <i>Dounreay Socio-Economic Development Plan (2009-10)</i></p> <p>Scottish National Statistics (www.sns.gov.uk)</p>
<p>Traffic and Transport</p>	<p>Dounreay is reached via a dedicated access road running north from the A836, approximately 13 km west of Thurso. The A836 provides the main east-west link along Scotland's north coast, and passes to the south of the Dounreay site.</p> <p>According to surveys undertaken in 2004, traffic flows are relatively low with 2,550 vehicles per day (two-way) recorded on the A836 between Dounreay and Thurso, and 1,500 vehicles per day (two-way) on the A836 between Dounreay and Melvich.</p> <p>A railway currently runs from Inverness north to Georgemas Junction, where the line splits with branches to Thurso and Wick.</p>	<p>UKAEA (2004) <i>Dounreay Environmental Statement</i></p>
<p>Land Use and Material Assets</p>	<p>Dounreay is a construction, demolition and waste management site undergoing a major decommissioning and clean-up programme designed to restore the site to an agreed end state. The plan for decommissioning the site anticipates all redundant buildings will be cleared in the medium term.</p> <p>Approximately 180 facilities were built at Dounreay ranging from nuclear reactors, waste stores, laboratories, utility plants and administration offices. The experimental nature of many of its redundant facilities means the clean-up and demolition requires innovation as well as great care.</p> <p>Some facilities are very straightforward to dismantle but others require special care because of chemical or radiological hazards inside them. Almost 50 facilities at Dounreay have a legacy of radioactive work and special controls are in place around these facilities to contain</p>	<p>UKAEA (2006) <i>Dounreay Environmental Statement</i></p> <p>www.dounreay.com</p>

	<p>the radioactivity.</p> <p>Soil that became polluted by radioactivity and chemicals also need to be dealt with and the public safeguarded from a legacy of particles that exist in the marine environment as a result of nuclear fuel reprocessing. The most contaminated soil will be left in place.</p> <p>A new long-range plan is produced for the closure and remediation of the site on a regular basis. A programme of negotiations is underway with stakeholders and regulators as part of the project to develop the strategy to achieve the Site End State and future land use conditions.</p> <p>The surrounding land is predominantly rural and used for agricultural purposes. No data exists relating to the quality of agricultural soil as the agricultural soil classification has only been undertaken for England. It is recognised that the Land Reform (Scotland) Act (2003) gives everyone statutory access rights to most land and inland water providing they exercise such rights responsibly.</p> <p>The removal of fish and crustacea is prohibited within an area of 2km radius centred on the disused Dounreay discharge point near where the highest density of radioactive fuel fragments have been detected.</p>	
<p>Noise and Vibration</p>	<p>A noise survey was undertaken in 2004. During the 12 months of the survey the highest level of noise recorded on or near the site was 52dB LAeq.</p> <p>Further noise monitoring was undertaken in 2010 and is being undertaken throughout 2011 at 3 monitoring locations. The monitoring results for August 2010 show baseline levels at the 2 locations closest to sensitive receptors ranging from 38.5 to 60.2dB LAeq 1 hr. The third location which is closer to the Dounreay site returned lower results ranging from 34.1 to 55.9dB LAeq 1hr. The monitoring location closest to the site shows little variation between day-time and night-time noise levels whilst those closest to the road exhibit a more noticeable variation.</p> <p>These results confirm:</p> <ul style="list-style-type: none"> - that despite the rural environment, natural ambient noise levels are higher than might be expected; - the influence of the A836 on ambient noise levels close to receptors is significant; - the influence of the Dounreay site on ambient noise levels is very low. <p>The exposed coastal environment and the proximity of the A836 means that the principal sources of noise in the vicinity of the Dounreay site are wind generated noise, waves breaking, traffic on the A836 and agriculture.</p> <p>However, the Dounreay site has received a complaint relating to noise generated from the Police firing range. Whilst there have been no change to the types of firearms in use, it is suspected that the decommissioning of some site buildings may have resulted in the loss of a degree of noise screening. DSRL is investigating potential noise abatement options.</p> <p>Confirmatory noise monitoring will continue most specifically for the purpose of assessing construction noise associated with the LLW Disposal Facility.</p>	<p>UKAEA (2005) <i>Dounreay Environmental Statement</i></p> <p>NDA (2008) <i>Site Operator Input</i></p>
<p>Health and Safety</p>	<p>During 2010/11 the average individual radiation dose received by both employees and contractors was 0.02 millisieverts (up to December 2010). In the same period Dounreay recorded 1 Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (RIIDDOR) reportable incident and had a Total Recordable Incident Rate (TRIR) of 0.28.</p> <p>The total dose from all sources (including Dounreay discharges) in 2009, using the integrated habits survey data obtained in 2008, was assessed to have been 0.063 millisieverts or approximately 6% of the annual public dose limit (of 1 millisieverts per year from all sources).</p>	<p>DSRL (2010) <i>DSRL Monthly Performance Report</i></p> <p>DSRL (2011) <i>DSG(2011)P038</i></p> <p>Environment Agency, et.al. (2010) <i>Radioactivity in Food and the Environment 2009 (RIFE 15)</i></p>

Future Developments

There will be a trend of decreasing discharges over the period to the Interim End Point, with some short term increases during periods of demolition and waste processing, and lower discharges during periods of less activity, such as during interim storage. DSRL is currently in the process of applying for a new RSA Authorisation for the Dounreay licensed site. The proposed new limits will generally be similar to or lower than the current limits.

Decommissioning will result in the generation of radioactive wastes, which will require treatment and packaging. These will be temporarily stored on-site until disposal facilities are available for their permanent disposal. New facilities at Dounreay to dispose of LLW currently in store on the site and future arisings have been given planning permission by The Highland Council planning authority.

The decline in employment at the site is likely to have a significant effect on the local economy, where alternative employment opportunities are generally limited due to the general rural character of the area and lack of larger settlements near by. The number of key staff required at the Dounreay site is expected to show a steady decrease to less than 50 operational staff and a security guard force at the Interim End Point. It is expected that some of the staff number reductions will be achieved through natural wastage and retirements.

Environmental Issues

Apart from Dounreay's visual impact, the site's effect on the environment is relatively low with only moderate resource consumption and discharges to the environment generally at fractions of the authorised annual discharge limits. The site has an accredited Environmental Monitoring System and approved waste management operations. Coastal flooding or changes in sea level are unlikely to represent a significant effect at Dounreay for several hundred years, and a study was undertaken in 2008 to better understand the extent of early coastal erosion impacts on the Dounreay site.

Radioactive fuel fragments have been released into the marine environment around Dounreay from the historic processing of radioactive material. These have settled in offshore sediments and a small number of particles have been washed ashore on local beaches. Arrangements are in place to monitor for these fuel fragments and recover, where practicable, those which are found.

Soil and groundwater quality at Dounreay is being monitored and managed as part of the Dounreay decommissioning and restoration programme.

The Site has applied for a new RSA Authorisation, which will be more consistent with a decommissioning site with diminishing discharge levels. The application has been through statutory consultation, with the new Authorisation anticipated to be in place before the end of 2012.

The Site has also made a case to significantly reduce its current Environmental Monitoring Programme (EMProg), in line with diminishing discharges. The thrust of the new proposals has been to reduce the number of animals

sampled for the marine environment. As with the RSA Authorisation, the new EMProg is anticipated to start from the end of 2012, if SEPA approve it.

The Site has applied to surrender its PPC (Part A) Permit.

Discussions have started with SEPA on a single Waste Management License for the Site. This will enable more efficient management of decommissioning rubble.

