

## DRAFT DOUNREAY HERITAGE STRATEGY

# EXECUTIVE SUMMARY

## 1 INTRODUCTION

Dounreay is no longer in operation and Dounreay Site Restoration Ltd (DSRL) is licensed to undertake the programme of decommissioning and clean-up of the site, on behalf of the Nuclear Decommissioning Authority (NDA).

The 'End State' of the Dounreay site is becoming better defined after the Dounreay Stakeholder Group (DSG) carried out public consultation in 2007. One of the conditions attached was for:

*"An open and transparent decision on the future of the DFR sphere, taking into account its 'national heritage significance'".*

In responding to this condition the NDA and DSRL, in partnership with Historic Scotland and Atkins Heritage, have worked together to establish a way forward for creating a cultural legacy of the site. This document has therefore been prepared by DSRL, with support from Atkins Heritage, to consider a number of options to retain the heritage of the Dounreay site for public benefit beyond the interim end point in 2025. The brief was to consider the whole of the site and heritage in the widest sense. Whilst NDA & DSRL recognise the significance of retaining industrial heritage this can be done in a number of ways and may not rely on the retention of key buildings.

Engagement has begun with the NDA, Historic Scotland, National Museum of Scotland, Caithness Horizons and the Dounreay Stakeholder Group over the nature of the strategy.

The strategy has been developed in line with best practice approaches to conservation management planning; in that it is founded on a robust understanding of the site and its cultural values and on a clear recognition of the issues and factors relating to decontamination, waste management, decommissioning, safety and security. The strategy's development has been an interesting challenge as such work has never been previously done for a complete nuclear site in the UK.

The NDA provides funds and is strategically responsible for the decommissioning programme and will determine the extent of heritage activities to be undertaken. The decommissioning and clean-up of the site remains the NDA's priority, completing this in a way that it is safe, environmentally acceptable and provides value for money to the taxpayer. Socio-economic considerations are among the key factors in any decisions on heritage.

## 2. The Heritage of Dounreay - Statement of Values

Dounreay's heritage significance can be divided into evidential, historical, aesthetic and communal values as follows:

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### **Evidential Value**

While Dounreay is unique in the UK, internationally it represents a similar, short phase of nuclear development - Fast Breeder technology. This phase was, in effect, a technological cul de sac and did not achieve widespread adoption. Dounreay is not typical, nor, in evidential terms, representative of the nuclear power industry.

Dounreay's extensive and well-catalogued archives – reports, documents, design drawings, site plans and photographs - cover all periods and parts of the site and document the innovative processes and general working conditions. The visitor books contain the signatures of high-profile visitors such as Prime Ministers, royalty, MPs, journalists and international scientific delegations. There are also symbolic and personal commemorative items, such as plaques and artworks, pamphlets and personal ephemera.

### **Historical Value**

As an experimental nuclear establishment Dounreay claims a number of significant achievements in the history and development of nuclear technology, including:

- DFR was the first fast breeder reactor in the world to produce electricity for public consumption (1962)
- The first criticality in Scotland took place in the uranium test rigs (1957)
- Dounreay chemists developed highly accurate analysis techniques for uranium and plutonium which are now used as the international standard.
- Dounreay has been and still is, at the forefront of the development of nuclear decommissioning technologies and methods, particularly in the destruction of alkali metals where PFR currently operates a world class facility.
- Dounreay created the first modern apprenticeship in Nuclear Operations and Decommissioning in the UK (2003).

### **Aesthetic Value**

A key aspect of the Site's aesthetic and visual quality is the contrast between the industrial dense complex, with the primary shapes of sphere, boxes and vertical lines and the surrounding rural landscape. Arguably, the visually and aesthetically most notable feature of Dounreay for some is the DFR Sphere, which, like all the structures was an architectural response to engineering and technological requirements.

### **Communal Value**

Dounreay seems to figure in the collective memory of the UK. For some, Dounreay, particularly the instantly recognisable sphere, is a symbol of modernity, progress and discovery at a time when Britain was at the forefront of science and innovation. For others, it is the darker side of human endeavour with a legacy of contamination and associations with an era of secrecy. The Sphere is an image which is often used in the media, incorrectly, as an archetype of the nuclear industry or the nuclear age.

The development of Dounreay transformed the rural economy and social life of the communities of Caithness and North Sutherland. There is an interest in the social

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history of those who worked on and lived near the site. In common with other industrial communities, a deep sense of history-in-the-making has been a characteristic of Dounreay from the earliest days. There are many plaques, signs and artworks which commemorate key events on the site.

### **3 Creating a Cultural Legacy – The Strategy**

Creating a cultural legacy for any site rarely depends entirely on preservation. A cultural legacy comprises a mix of components and entails the selection of the most appropriate and feasible opportunities for:

- Physical conservation and retention of buildings and objects
- Retention of evidential material about the site and history
- Communicating and celebrating the heritage – the historical events, processes, achievements and individuals

The Lifetime Plan (LTP) for Dounreay describes the scope, schedule and cost of the decommissioning activities, from the present condition to the End State and beyond. The objective is that the End State should be a “restored site, with early release of land”. The NDA requires that the End State should be “radiological and industrial brown field” and by 2025 most of the physical works on the site will be complete, although institutional control will continue up to 2078 and probably well beyond.

Thus the heritage of Dounreay cannot be considered in isolation. There are some key assumptions that must be taken into account in the formulation of a lasting cultural legacy:

- The priority is to restore the environment in a safe manner which gives best value to the UK taxpayer – for the environment and human health, through the interrelated tasks of decontamination, waste management and decommissioning
- The need to maintain the decommissioning programme – which itself has considerable technical challenges and financial restrictions and is subject to regulatory requirements
- The need for security and safety. The decommissioning of facilities and the construction of new ones for dealing with the generated waste, residual ground contamination, together with the need to keep radioactive materials secure means that the licensed site at Dounreay is not, and cannot be, fully open to the general public. Any access will be in a highly controlled and limited manner. This situation will last until at least 2078 and probably well beyond.

There are also other issues that must be considered:

- The very considerable cost of conserving and maintaining some of the structures, some of which are already unsound. The NDA budget must give highest priority to features and projects which address high hazards and associated risks.
- The projected low level of likely visitors to Dounreay, even if a visitor attraction was developed

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- The unavoidable reduction in heritage value of what would remain of the assemblage of structures, once essential demolition and removal has occurred.
- The cost of up keeping or maintaining structures which will fall to future generations.

In this context, DSRL explored a diverse range of possible actions, activities and initiatives that could deliver a viable cultural legacy for the site.

This included identifying a number of options which NDA/DSRL has concluded are not feasible:

### Rejected Options

Option	Main reasons for rejection
1. Retention of the site in its entirety	<ul style="list-style-type: none"> <li>• Safety &amp; security issues</li> <li>• Decontamination costs</li> <li>• High long-term maintenance costs.</li> <li>• Extent of ground contamination in Fuel Cycle Area (FCA).</li> <li>• Facilities must be removed due to contamination and structural issues</li> </ul>
2. Retention of PFR and FCA in their entirety	<ul style="list-style-type: none"> <li>• As above, plus PFR external cladding is deteriorating</li> </ul>
3. Retention of DFR sphere and DMTR	<ul style="list-style-type: none"> <li>• Removal of radioactive contamination will only leave the metal shells, this would almost entirely remove evidential and technological value.</li> <li>• Metal shells may never be 100% clear of radioactive contamination</li> <li>• High cost of maintenance and no identified funding.</li> <li>• Limited public access due to safety and security issues with proximity of waste stores.</li> </ul>
4. Retention of buildings and conversion for other uses in the short term	<ul style="list-style-type: none"> <li>• Restricted public access due to safety and security issues.</li> <li>• High costs for conversion and maintenance.</li> <li>• Lack of a sustainable market.</li> </ul>
5. Preservation of all objects	<ul style="list-style-type: none"> <li>• Many are radioactively contaminated and there are associated health and safety and cost issues in cleaning these.</li> <li>• Lack of suitable storage space</li> </ul>
6. Development of the site or part of the site as visitor centre	<ul style="list-style-type: none"> <li>• Restricted public access onto the site due to safety and security issues.</li> <li>• Low level of projected visitors.</li> <li>• Funding issues.</li> </ul>

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### **Proposed Way Forward – The NDA/DSRL Components**

While it is not possible, nor desirable, to retain the Dounreay site in its entirety, there remain real opportunities to ensure that many of the identified heritage values can be conserved and communicated to present and future generations.

The following sets out what DSRL is already delivering and could, as part of the implementation of the Heritage Strategy, continue to deliver between now and the interim end point in c.2025:

- Continuing the role of the Dounreay Heritage Officer
- Conservation of objects in conjunction with Caithness Horizons museum and the National Museums of Scotland, Edinburgh
- Archiving of reports, documents, drawings, film and photographs
- Recording of buildings during clean-up and demolition via reports, pictures and film
- Support for publications on Dounreay's history
- Recording people's memories of Dounreay and its impact
- Development of online and virtual material
- Monthly publication of Dounreay newspaper highlighting on-going decommissioning work and people activities

Over the period 2009 to 2025 the additional budget for these proposals, which is in addition to the costs of decommissioning, could be in the region of £60,000 per annum. Overall, NDA/DSRL believes that this is a contribution to the implementation of the Strategy that would deliver a real and substantial cultural legacy.

However, this approach does not envisage the retention of the DFR Sphere or any other non-functioning buildings beyond 2025. A combination of loss of cultural value due to essential decommissioning activities, considerable radiological risk and the lack of public access, has led DSRL to conclude that the retention of the DFR Sphere would not deliver significant benefits on a local or national scale and that greater public benefit can be achieved through other measures.

### **Other possible opportunities – components to be implemented in partnership**

The strategy has also identified a number of possible opportunities that would contribute to the cultural legacy. None can be funded within the context of existing LTP budgets and these opportunities fall outwith the expertise of DSRL and the NDA to fulfil. However, they present important opportunities for other heritage organisations to take the lead in implementing substantial elements of the Dounreay Heritage Strategy. Consequently, DSRL and the NDA wish to engage with staff and a broad range of organisations to identify what, if any, of the additional opportunities they should pursue beyond the NDA/DSRL components.

The possible opportunities, with the feasibility issues and costs are set out below:

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Opportunity	Cultural legacy	Feasibility issues	Costs
1. Funded academic study	Historical and Communal value On-going high-quality research on the site and its technological or social history	Partnership would be needed with a university and / or local institution to develop an active research programme This could include technical as well as heritage-related subjects Educational grants could minimise cost to the NDA	c.£20k-£100k
2. Off-site Exhibition	Communal value Communication and celebration of history of Dounreay Major off-site gallery relating to Dounreay and / or the wider nuclear industry housed and delivered by a national museum. Alternatively a touring exhibition	Would need development of partnerships with other organisations, such as NMS DSRL contribution would be 'in kind' loan of objects etc Touring exhibition would be less expensive option	c.£0.5M - £3M
3. International Conference relating to Dounreay and nuclear heritage issues.	Communal and Evidential value Communication and celebration of Dounreay. Raising of profile of history and contribution to national or international audience Furthering and sharing of research on nuclear industry history	Venue would need to be commensurate with international interest and likely participants - major metropolitan centre to encourage attendance. Costs could be partially recouped through attendance charges, sponsorship and external funding	c.£50k to £100k
4. Commemorative Installation	Communal value Commemoration of Dounreay e.g. on-site sculpture / marker or a "gate guardian" such as a transport flask	Best delivered by DSRL / NDA in partnership with local communities The scale of ambition and nature of installation would largely govern costs.	c.£10k - £1M

#### 4 Summary

A combination of loss of cultural value due to essential decommissioning activities, considerable radiological risk and the lack of public access, has led 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. Greater public benefit could be achieved through other measures that record and preserve Dounreay's heritage.

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DSRL is already implementing a number of components of the Heritage Strategy and proposes to continue and expand the activities already started. The projected additional annual cost is in the region of £60,000 through to c.2025. This includes the cost of a Heritage Officer to co-ordinate all activities.

The rejected conservation options would require significant additional funding and reworking of the current lifetime plan.

### **5 Next Steps**

DSRL is committed to involving stakeholders, especially within the local community and an engagement programme has been identified.

Feedback from all interested parties will be reviewed by the NDA & DSRL and when completed, the NDA will complete the final strategy. This will set out how it will be taken forward in the form of a clearly defined Implementation Plan, including programme, partnerships, responsibilities, policies, standards and the mix of community, employee, external and professional inputs.