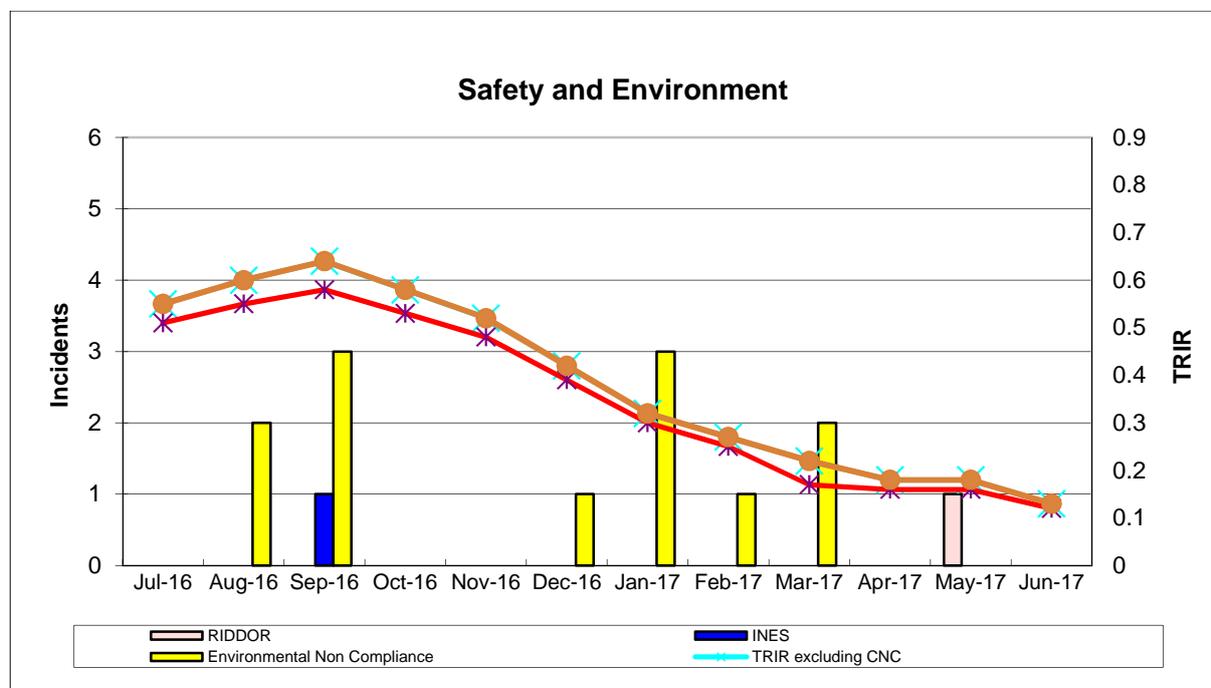


## Dounreay Report (March to end June 2017)

### Site decommissioning programme

Discussions are ongoing with NDA on the updated decommissioning plan which reflects the prioritisation and additional scope for nuclear materials. During 2017/18, the site's delivery priorities will continue to be the exotics programme, breeder removal and improved resource utilisation – always ensuring that work is undertaken in a safe, secure and environmentally responsible manner.

### Health, Safety, Security and Environment



- ) The site continued to improve on its safety indicators. The total recordable incident rate had reduced and now sits at 0.13 (as of the end of June).
- ) The site has gone 70 days (as of 10<sup>th</sup> July) without a lost time accident.
- ) During May a lost time accident occurred when a scaffolder working outside was carrying a scaffold board over rough ground, caught his foot causing him to sprain his ankle. Up to that point the site had gone 250 days without a lost time accident which had been one of the best runs in recent times.

- ) The process for reporting environmental non-compliances has changed to align with the rest of the NDA estate.
- ) With regards to the environment, it had been discovered that there has been a potential under-reporting of tritium levels over a period of time from one area of PFR. The site has been working with SEPA and assisting them with their assessment. All discharge data from the last 10 years is being reviewed to ensure the information provided is robust. In addition work is ongoing to look across the site to ensure there are no further legacy issues in the reporting of discharges. It is not envisaged that the site has breached any of its discharge authorisations during this period. SEPA's investigation is ongoing.
- ) As reported previously, SEPA has issued a final warning letter with regards water ingress in the silo. The site is working to discharge these actions.
- ) Following routine sampling, elevated levels of caesium were detected within the non-active drains at the eastern end of the site. Immediate action was taken to identify the source and the area has now been identified. The source area has been identified. A level 2 investigation has been completed and further action has been identified. SEPA have been kept informed of progress.
- ) Dounreay has submitted an application to SEPA for a variation to the site RSA Authorisation. The variation covers increases in the gaseous discharge subsidiary limits, addition of stacks associated with the Environmental Analysis Labs and change of frequency for the on-site low level waste pits. SEPA has commenced its determination of this application.
- ) The British Safety Council awarded Dounreay with an international safety award with distinction. Dounreay was one of 31 companies worldwide to receive such an award and also won one of the 14 sector awards.
- ) A successful demonstration of the site's emergency arrangements took place in May. ONR has assessed this as an adequate demonstration and acknowledged that the scenario was challenging and realistic with a lot of effort being put in place to make it an effective exercise.
- ) The Chief Nuclear Officer's improvement plan (the Dounreay Plan) was issued in January 2017. This follows on from the work of the Dounreay Improvement Team which concluded its work in December 2016. Ownership of all improvement actions now sits with the CNO. As part of this continued work, CNO has established a programme of pro-active safety stand-downs as well as other improvement initiatives.

## Site performance

Appendix 1 provides information of the key project milestones for 2017/18. Specific performance achievements are outlined below.

## Reactors

### ***Dounreay Fast Reactor (DFR)***

- ) In March, the first block of concrete was removed from the structure of one of Dounreay's cooling ponds – representing a major first step in demolishing the redundant giant chamber. To date (as of end June), 33 blocks, the entire first row, have now been removed.
- ) The inactive commissioning of the DFR breeder in sphere has been completed. The Licence Instrument for active commissioning has been approved.
- ) In cell preparations for the DFR Breeder fuel NaK compartment is now complete and lead shield window has been fitted. Inactive commissioning of the recan containment has also been completed.
- ) A Gravity water tank has been removed from the NaK Destruction Plant (NDP) and size reduced. Sections of the transfer line to glovebox have been removed and size reduced. The Transfer line, dip leg and flexible line has been transferred to PFR for treatment in the Sodium Inventory Destruction Plant.
- ) Strip out of the redundant cabling in the sphere fan gallery area is continuing.
- ) The breeder removal remains one of the site's highest priority projects, while recognising that safety, security and the environment are always the over-riding factors of high priority Work is ongoing with ONR to allow a licence instrument to be put in place which will allow the project to move to the next phase of that work.



### ***Prototype Fast Reactor (PFR)***

- ) An inspection camera was used in the PFR reactor vessel to successfully gather data to allow an accurate calculation of the remaining sodium heel pool volume and to confirm the need for further sodium removal.
- ) Operations of the Sodium Inventory Destruction Plant have recommenced.
- ) Post operational clean-out (POCO) of the Irradiated Fuel Cave work continues.
- ) Testing of the crane rails in the PFR Reactor hall were completed and indicated surface defects only. Therefore the crane has now been approved for use. An annual inspection will now be carried out. The approval to restart use of the crane allows work to continue to enable treatment of the remaining sodium in the PFR reactor.

## ***Dounreay Materials Test Reactor (DMTR)***

- ) **D1251:** Work is progressing to prepare for the demolition of the DMTR's support building. Removal of the pipe bridge has commenced.



## **Fuel Cycle Area**

- ) **D1200:** The ventilation system for the labs has been rationalised and the design for phase 1 is now approved. The replacement kit is currently being sourced.
- ) **D1208:** The secondary cooling system has been refurbished which allows ongoing management of rain water and ground water ingress via the high active drain duct and below ground cell structures.
- ) **D1217:** Phase 2 of the ventilation reconfiguration modifications has been approved and transfer cell conditioning has now commenced.
- ) **D2001:** Waste and fuel operations have recommenced following work to the crane.

## **Fuels**

- ) Good progress continues to be made to remove nuclear fuel from the site. Advice has been provided to community representatives that they may see a strong police presence before and during the next phase of transports. This is normal for nuclear materials with a high security rating. We apologise for any temporary inconvenience caused by these planned measures.

## **Waste**

- ) Grouting operations have recommenced allowing top-off of existing HHISOs at the LLW vault, and allows additional low level waste HHISO disposal to the vault.

- ) The Dounreay Cementation Plant Intermediate Level Waste Store has been granted planning approval by Highland Council.
- ) A Best Practical Means Options assessment was undertaken in May 2017 to determine the best radionuclide containment during periods of low ground water level for the D1212 low level waste pits. The assessment considered all related compliance with the Radioactive Substances Act.

### **Shaft and Silo**

- ) A Radioactive Waste Management (RWM) assessment was carried out on the nature and quantities document. The feedback provided noted a good quality document had been provided with five minor issues to be addressed.

### **Environmental Closure and Demolition**

#### **Highland Council Planning Application (HC) (phase 3, 2018 to interim end state)**

- ) Stakeholder engagement activities were launched on 12 June to encourage feedback on Dounreay planning phase 3 developments before a planning application is submitted later this year. Drop-in events were held in Reay, Wick and Thurso. A presentation was provided to DSG members on 14 June at the public meeting and also provided to Buldoo Residents on 22 June. Information on the decommissioning activities will be available in Dounreay.com (Thurso) throughout July/August and members of the public are being encouraged to provide their views.



Artistic Impression of the Interim End State

### **Particles**

- ) A review of the Particles BPEO continues. While this is a technical review it has included a review of the stakeholder consultation undertaken to inform the BPEO which was published in 2008.
- ) During routine monitoring of beaches (Jan to end May) six minor particles were detected at Sandside and two significant/one relevant detected on the Dounreay west foreshore.
- ) A particle found on the Dounreay foreshore in December was not similar to the particles normally detected and removed. While the majority of particles have a gamma signature this particular one was found to have no caesium-137 and was discovered due to the presence of Am-241. SEPA was informed and some further analysis was carried out. SEPA requested that the particle was sent to Stirling University for further examination. Stirling University has now carried out analysis and discussions are ongoing with SEPA as to the likely pathway of this particle.

## Heritage

) The donation of 14 objects to Caithness Horizons is going through the internal approval process. The objects being donated are:

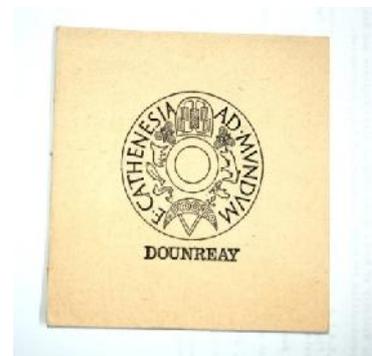
- Site restoration trophy: large Caithness Glass rosebowl (originally used for golf competitions).
- DMTR tube: plain aluminium tube
- Police badge set: Set of 5 framed badges 1955-2005)
- Bone china ashtray (Wedgwood with UKAEA coat of arms)
- Ladybird book (The story of Nuclear Power): published in 1972 featuring DFR and PFR.
- Christmas card: UKAEA Christmas card with coat of arms & season's greetings on front. (explains the symbols and what UKAEA was responsible for).
- Employment offer letter: Mr E Watt, dated 31 July 20174
- PFR clock: PFR commissioning stone inscriptions and symbols, 30 March 1999.
- Fire Brigade badge: Silver coloured UKAEA lapel badge
- Teaspoon: Souvenir teaspoon with image of DFR and Dounreay (sold in local shops).
- International safety award 2011: Marble effect trophy
- Pay ID card: pay identify card for D Henderson (1967)
- UKAEA coat of arms model: Aluminium 3D model of UKAEA coat of arms
- Bracelet charm: Silver charm for bracelet with image of DFR.



) Past and present employees and members of the public were interviewed by BBC Radio Scotland for a social history programme called "Our Story". It covered current impressions and past memories of the impact that Dounreay had on Caithness. It will be broadcast in mid-August at 1.30pm on a Tuesday.

) Five heritage objects were collected in the period:

- Four safety awards – British Safety Council (BSC) 2009 safety award, BSC International Safety Award 2012 & 2016, BSC Globe of Honour 2012.
- PFR drinks mat



) Two leavers have completed the Dounreay Memories form.

## Commercial

) Dounreay's procurement process now includes the potential for socio economic considerations (apprenticeships, jobs, SME support and economic diversification). Examples of this include:

- ) Engaging with the local supply chain and working with them to ensure their services are deployed when appropriate.
- ) Encouraging the secondment of DSRL apprentices and graduates into project teams on larger packages to further their appreciation of working in different businesses.
- ) Supporting the North Highland College, UHI with presentations and (where appropriate) access to subject matter experts.
- ) Supporting STEM activities in the area.

- ) Local suppliers day
- ) Charity events to raise money for local organisations.

A list of the ongoing contracts and the socio economic benefit provision has been reported in the Dounreay Socio Economic report to the DSG Socio economic sub group.

- ) The DSRL Commercial team continues to support a number of supply chain events including the Nuclear Supply Chain Project with presentations and 1:1 meetings at an event in Aberdeen (Winning Business in the Nuclear Market), a Meet the Buyer event in Dunblane in June 2017 and recently hosted a market engagement day in Manchester talking to potential suppliers about the latest in a series of potential frameworks to support the work at site.
- ) An Industry Engagement Day for a new framework agreement for Safety Case Production and Peer Review Services was held by the site’s Commercial Department in Warrington on 28 June.
- ) Dounreay recent hosted the Nu-Technology exhibition at the site which gave local and national suppliers an opportunity to exhibit their capabilities and services to support the site’s decommissioning.
- ) Stagecoach has been awarded a contract to continue providing the home to work transport service following a competitive process. The contract includes a number of new key performance indicators.
- ) The Commercial Department is set to launch a new Small and Medium Enterprise (SME) Innovation Scheme, LINC with Dounreay. It was previewed at the 2017 Nuclear Supply Chain Event in Dunblane where it was well received from the SME community and is also being supported by NDA and the Caithness Chamber of Commerce.
- ) Meetings continue to be held with the Caithness Chamber of Commerce.



## General

### Staffing (as at end of June 2017)

	FTE Target	FTE Actual /Forecast
<b>Current - DSRL</b>	1,178 (LTP)	1157.0
<b>Current – ASW</b>	N/A	121

- ) June 2017: 8 new starts (2 contractor conversions), 3 resignations and 2 deaths in service.
- ) **Management changes:** Sam Usher joined the Dounreay team at the beginning of May and took over responsibility as Waste Director from Bruce Covert.
- ) **Voluntary redundancies:** In April Dounreay announced a voluntary redundancy programme and DSG members received a letter explaining the circumstances on the day that the workforce was briefed. It was expected that around 200 roles would reduce during the next year or so (around 150 DSRL jobs and around 50 contractor positions). This was to allow the site to plan ahead for

the conclusion of some big projects and it was believed that the fairest way to deal with this situation would be to offer this opportunity to everyone on the site. There is a recognition that job reductions will always be viewed as difficult news but the best option for the site and its' workforce is to plan ahead and provide people with as much notice as possible when there is likely to be change in the staffing profile. This is inevitable as decommissioning progresses. This is a voluntary programme to identify who would wish to take the opportunity to leave. The application period had now ended and over 200 applications have been received. Applications have now been reviewed with the intention of giving feedback to individuals in July.

- ) Dounreay is continuing to invest in young people by providing employment through the graduate and apprentice schemes. This year eight apprentices and 10 graduates have been recruited as well as three interns and nine work placement students.
- ) Dounreay supported graduate attendance at the Nuclear Institute's Young Generation Network European conference which was being held in Manchester in April. The Dounreay graduates hosted a workshop about the challenges associated with decommissioning.
- ) As part of the site's commitment to developing the workforce, 15 of the team have been working towards an NVQ level 2 diploma in process industries operations. Four have now passed with the rest on course to be completed this year. Two of the team are also trained to be new assessors as part of the roll out of the course.
- ) Dounreay was recently successful in gaining approved apprentice status from the Institution of Engineering and Technology for our Engineering competency based (NVQ) apprenticeship programmes.
- ) **Women in Nuclear:** Dounreay has a women's network which followed the signing of a Women in Nuclear UK charter last year - a key part of Dounreay's focus on equality, diversity and inclusion. The network aims to improve the number of women working in the nuclear industry to create a more diverse and inclusive workplace. Around 30% of Dounreay's workforce are female which is higher than the industry average, but there is much more to do. The network will be doing all it can to improve that and have set an ambitious goal to be recognised as the leading NDA site for women in leadership roles.



## APPENDIX 1: PROJECT MILESTONES FOR 2017/18

Area	Milestone	Due Date	Status
Reactors	Design, manufacture and trial four tools for reactor dismantling	Jan 2018	
Reactors	Loading of first flask with breeder elements	Jul 2017	August 
Reactors	Complete removal of pond east wall liner	December 2017	
FCA	D1200 ventilation installed and commissioned	Dec 2017	
FCA	D1204 medium active cell decommissioning preparatory works complete	Dec 2017	
FCA	Complete Phase 1 Cell Wall removal in D1217	March 2018	
FCA	DMTR D1251 demolition complete	October 2017	November 2017 
Waste	DCP operations - PFR raffinate active commissioning complete	Jan 2018	
Waste	Restart waste operations at D3100 Vaults and D2179 Encapsulation Plant	June 2017	

### Key:



On target to deliver  
At risk  
Missed  
Achieved

## GLOSSARY

Abbreviation	
BCP	Baseline Change Proposal
DACR	Days Away Case Rate
DCP	Dounreay Cementation Plant
DFR	Dounreay Fast reactor
DIT	Dounreay Improvement Team
DMR	Dounreay Modification Report
DMTR	Dounreay Materials Test Reactor
DPF	Dounreay Planning Framework
DSRL	Dounreay Site Restoration Ltd
EIA	Environmental Impact Assessment
ES	Environmental Statement
IFBS	Irradiated Fuel Buffer Store
IFC	Irradiated Fuel Cave
INF	Incident Notification Form
LLLETP	Low Level Waste Effluent Treatment Plant
LLW	Low level waste
LTA	Lost Time Accident
mSv	milli Sieverts
NDP	NaK Disposal Plant
OJEU	Official Journal of the European Union
ONR	Office for Nuclear Regular
PBO	Parent Body Organisation
PCP	Project Control Procedure
PFA	Pulverised Fly Ash
PFR	Prototype Fast Reactor
PFR	Prototype Fast Reactor
PSR	Preliminary Safety Report
RAMT	Radioactive Material Transport
RIDDOR	Reporting of injuries, Diseases & Dangerous Occurrences Regulations.
RSA	Radioactive Substances Act
SEPA	Scottish Environment Protection Agency
SID	Sodium Inventory Destruction Plant
STA	Sample Tank Annex
TRIR	Total Recordable Incident Rate
WRACS	Waste, Receipt, Assay, Characterisation and Supercompaction