

Dounreay Progress Report

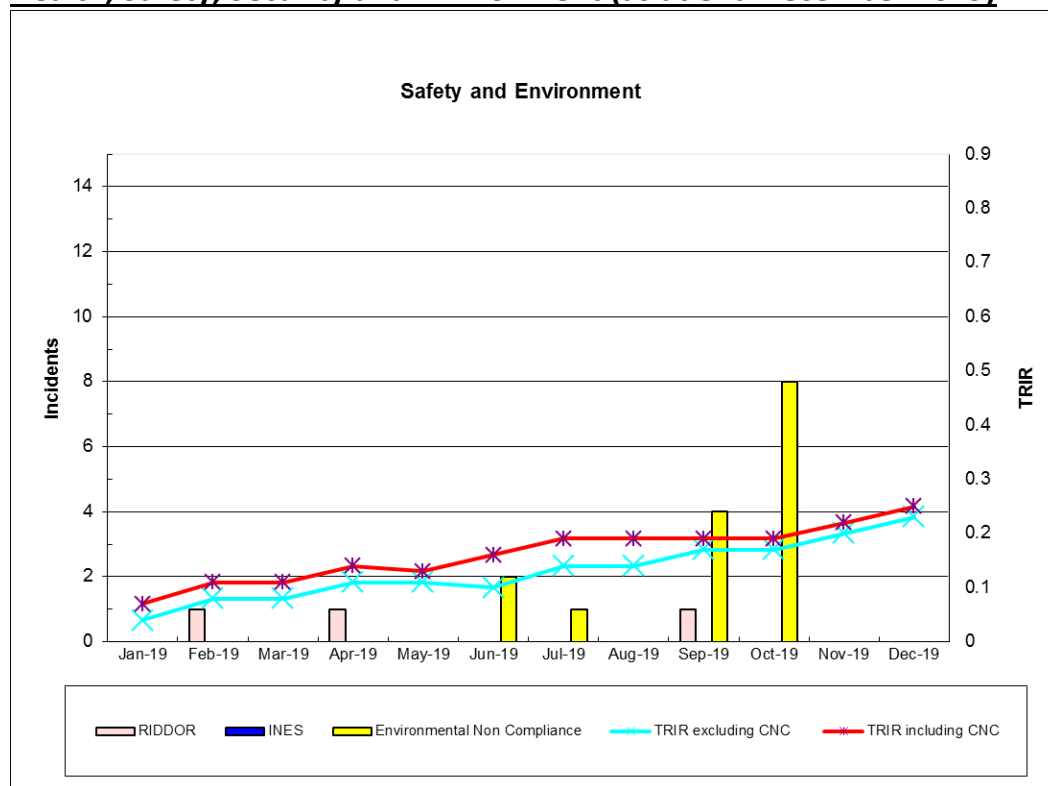
As of 8 January 2020

DSG(2020)P005

Decommissioning programme

The team remains focused on safely reducing hazards with multiple projects making progress across several facilities in accordance with existing plans. In parallel, DSRL and NDA are continuing to work together to agree a joint updated decommissioning programme for the site. Some additional work has now been requested as part of the review process and stakeholders will be kept updated as this progresses.

Health, Safety, Security and Environment (as at end December 2019)



- The latest total recordable incident rate is 0.23 (December 2019). The latest event contributing to this figure involved an operative tweaking their back during construction work on the DCP store extension. Separately, an individual slipped in an area that was wet and received some tendon damage, which resulted in time off work to recover.
- As reported at previous meetings, SEPA issued a regulatory notice following its investigation into an event in February 2019 in one of the Fuel Cycle Area facilities. A team has been established to manage the resulting actions and good progress has been made.
- DSRL has received a regulatory notice from SEPA following a compliance inspection which found that some of the site's engineering standards were not being fully implemented. Resulting actions have been set and a team has been established to take these forward. Actions include a review of the adequacy of management arrangements and written procedures in place.

- Dounreay is the first site in the NDA group to receive full membership of the Lifting Equipment Engineering Association (LEEA). LEEA is the leading association for all those involved in the lifting and safety industry, promoting enhanced standards and best practice worldwide.



Site decommissioning

Appendix 1 of this report provides information about key project milestones for 2019/20. Recent specific performance achievements are outlined below.

Fuels

The UK Government has announced that the next phase of the Dounreay Exotics Consolidation Programme has been successfully completed, which involved safely consolidating the Dounreay stock of civil separated plutonium at Sellafield. It follows earlier confirmation that the project to move Highly Enriched Uranium to the United States had been successfully completed.

Reactors

Dounreay Materials Test Reactor (DMTR):

- The first outward sign of demolition has taken place, with the project team working together in challenging weather conditions to remove 2 vehicle airlock housings, weighing 10-tonnes each, and 2 7-tonne doors. They have been replaced with roller shutter doors. Meanwhile, characterisation of the Fuel Element Storage Block characterisation for DMTR is now complete and the removal of asbestos discovered within the vehicle access lock has also been completed.

PFR:

- The sodium inventory disposal plant has now completed the clean-up of all 155 loads of sodium-wetted items and will be decommissioned. This equates to 1,089 drums containing a total gross weight of more than 43,000kg of metalwork (primarily pipework). It is estimated that almost 4,000kg of sodium and around 300kg of NaK have been through the plant in the last 12 years.
- The final stage of providing access into the Primary Cold Trap Loop vault is now complete. This entailed cutting through the vault liner which was constructed from 2 layers of 2mm plate, sandwiched with rockwool insulation. This will facilitate fuller characterisation of the internal equipment and pipework.
- An inactive alkali metal laboratory has been successfully decommissioned, with minimal challenges and ahead of schedule. It was historically used for small-scale experimental work and interactive demonstrations as part of alkali metal training courses. The team is now moving on to decommission the active laboratory.



DFR:

- 14 November 2019 marked the 60th anniversary of the day that DFR achieved criticality.
- The team has been drilling the outer breeder top plate of the reactor. Samples of top plate swarf have been recovered for analysis in the labs, which will provide information for future decommissioning activities.

Fuel Cycle Area

- **D1200:** Non-invasive characterisation of the labs (L107) is complete.
- **D1204:** A High Active Cell shielded door has been installed. The Calorifier room modifications are now complete along with the active sample analysis from the pond and manufacture of the crane access platform. The Crane fall arrest has been installed and commissioned.
- **D1211:** Lower level brickwork and liner have now been removed from all walls in Pit 1.
- **D2001:** A review of carbon filter options has been undertaken and a desktop assessment completed. Microscope cell decommissioning enabling work has commenced.
- **D1217:** Enabling work for inner cell wall coring is complete and coring has commenced.
- **D1206:** Plant strip out is complete and preparations are underway for installation of a tertiary system.



Waste

- A less expensive low level waste disposal container has been developed and introduced. The first generation DC01 "yellow" HHISO containers arrived on site last year, with the first accepted for disposal in October. It saves around £4,000 per container compared to those previously in use.
- A Shaft and Silo Project Definition Rating Index (PDRI) Review was completed during December. PDRI is used by capital projects to measure the degree of scope definition, identify gaps, and take appropriate actions to reduce risk during front end planning.
- The waste optimisation and Dounreay Cementation Plant (DCP) teams hosted a visit by Radioactive Waste Management (RWM) Ltd in mid-November to look at management arrangements for higher activity waste. It focused on record keeping, treatment of waste and production of waste packages. RWM was very complimentary about the knowledge and effectiveness of the Dounreay team.
- Around 173 tonnes of waste metal and 200 tonnes of reinforced concrete has been recycled in the last year.



Construction

Work continues on the DCP store extension with the base slab complete. Shield doors are being prepared for Factory Acceptance Tests prior to installation on site as part of the wall construction sequencing.

The Interim End State Delivery Team

- An unconstrained review of the site end state continues to be developed. DSRL has now had the list of credible options agreed at the Dounreay Nuclear Safety and Environment Committee and at the NDA's Senior Strategy Committee. The next stage will be to apply these credible options to the site's facilities and components, but in a site wide context. This process will be assessed in accordance with the NDA value added framework and strategy management system. DSRL will be inviting DSG representatives to attend assessment workshops to ensure that local views are adequately represented.
- As previously reported, a series of groundwater monitoring boreholes are being drilled in 3 phases around the site. The drilling for all 3 phases is now complete, ahead of schedule. The boreholes were drilled near to the new low level waste facility, tenanted land and in the FCA and area of the historic low level waste pits. The boreholes are required to allow the development of understanding of groundwater quality prior to it entering the site.

Particles

- Since the last written report one additional particle was found on the West Foreshore. The totals for 2019 are therefore:
 - Foreshore 4 particles, 2 Significant (Jan and Feb) and 2 relevant (Apr and Dec)
 - Sandside: 6 particles all Minor, found in Feb, Mar and September (4).A minor particle was also found on Sandside beach on 9 January 2020.
- Work continues on the analysis of the unusual particle recovered in 2016 from the foreshore. The final analytical steps are now being performed at Dounreay and the results are expected over the next few weeks.

Commercial

- Discussions with the companies in the decommissioning services framework contract have been ongoing. Discussions have included pre-competition for the upcoming work packages which are of significant value and duration and Commercial are working with these companies to ensure the packages are competed in the most effective manner to provide best value for money. Discussions have also commenced on the socio economic plans that were submitted as part of the framework competition.
- 353 small and medium size companies have now registered for the Liaise, Innovate, Network and Collaborate (LINC) scheme, to work with each other to deliver innovative solutions to support the decommissioning programme.
- Contracts awarded during November/December 2019 include:
 - 50 DC01 containers: Thurston Group Ltd
 - Optimised Metal Recycling (Phase 2a): LLW Repository Ltd

- Provision and support of ATOM application: Fujitsu Services Ltd
- Scaffold Store: JGC Engineering
- Framework haulage services: D Steven & Son

General

Staffing (end November 2019)

	FTE Target	FTE Actual
Current - DSRL	1,151	1,171.2
Current – ASW		109

1 new start, 3 resignations, 2 deaths in service.

- Two Dounreay colleagues sadly passed away unexpectedly during the period - interim Managing Director Steve Beckitt and James Sutherland who worked in PFR. On behalf of the whole site team, thank you to everyone in the community for the support that has been received and our thoughts continue to be with their families and friends.
- Kenny Douglas, who was already a member of the DSRL Board, has been appointed Managing Director on an interim basis until longer term arrangements are in place.
- Sam Usher, Strategic Programme Director, will become the DSRL representative at future DSG Site Restoration sub group meetings.
- In November, Kazuaki Matsui (Matsui-San) joined Senior Project Manager Graeme Dunnett and the PFR team for a 6-month secondment. Matsui-San is an engineer at the Monju reactor in Japan, which is a sodium-cooled fast reactor similar to PFR. His secondment is part of a UK-Japan collaboration on decommissioning.
- For updates on heritage, site visits and people topics, see the DSG Socio Economic report.

Dounreay Site Restoration Limited

8 January 2020

APPENDIX 1 – KEY MILESTONES 2019/20

Area	Milestone	Date due	Progress
FCA	D2001 NDA7 scheme design & detailed design stage 1	30-Jun-19	Complete
FCA	D1211 Pit 1 decommissioned stage 1	31-Aug-19	Complete
Construction	DCP store extension, 1st concrete pour stage 1	31-Aug-19	Complete
IES	Installation of 19 Boreholes - phase 1	20-Sep-19	Complete
Fuels	D2001 Irradiated Exotic Fuel disposition concept design completion	10-Oct-19	Complete
IES	Installation of 19 Boreholes - phase 2	25-Oct-19	Complete
FCA	D1200 Lab 101 decommissioned	31-Oct-19	Complete
Waste	Acidification of 1st Batch of ADU Floc	29-Nov-19 Forecast date: 28 Feb-19	
IES	Installation of 19 Boreholes - phase 3	13-Dec-19	Complete
FCA	No signed PAF – no funds allocated		
Construction	DCP store extension, 1st concrete pour stage 2	28-Feb-20	Complete
FCA	D1211 Pit 1 decommissioned stage 2	31-Mar-20	
FCA	D2001 NDA7 scheme design & detailed design stage 2	31-Mar-20	
Reactors	SID - completion of treatment of sodium components and commencement of treatment of tank 2	31-Mar-20	

Key:

	On target to deliver
	At risk
	Missed

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
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