

# 06/10 PERFORMANCE



Dounreay Site  
Restoration Ltd

Site clean-up performance report for  
**June 2010**

[www.dounreay.com](http://www.dounreay.com)

## Pond clean-up passes the halfway point

**A decommissioning team has now treated more than half the contaminated water used historically to shield spent fuel at the Dounreay Fast Reactor.**

A total of 228 m<sup>3</sup> was processed during June, taking the total so far to 523m<sup>3</sup>.

The water was used in the reactor's "pond" - a concrete vault similar to a swimming pool - where spent fuel was stored before transfer to a reprocessing plant.

The pond was constructed in two sections, an east pond and a west pond, and although water has been treated from both ponds, most of the water treated to date has been from the east pond

All the fuel has gone from the pond and the underwater racks removed.

The next phase of its decommissioning is to remove and treat the remainder of the water, and remove and package the accumulated sludge for disposal.

Project manager Mark Aitken said sludge retrieval and packaging is expected to be the most challenging part of the project. The quantities and physical characteristics of the sludge

won't be evident until most of the water has been removed.

Radiation levels in the area were predicted to increase as the shielding provided by the water reduced.

This has been confirmed by surveys and additional shielding is being installed, as planned, on the pond transporter mechanism to ensure any dose received by workers remains low.

The team is on course to complete the emptying of sludge from the base of the pond by the end of March 2011.



# PROGRAMME PERFORMANCE REPORT

June 2010

## PROGRAMME DELIVERY

Schedule Performance Index (SPI)

Year to-date	Year-end forecast
<b>0.99</b>	<b>1.00</b>

\* SPI measures work actually carried out against the agreed NDA schedule.

Cost Performance Index (CPI)

Year to-date	Year-end forecast
<b>1.11</b>	<b>1.09</b>

\* CPI measures the cost of work actually carried out against the forecast agreed with the NDA. A figure of 1.0 equals the cost agreed - greater than one reflects efficiency gains.

Performance Based Incentives (PBI)

Year to-date earned	Year-end maximum forecast for project delivery
<b>£270K</b>	<b>£6 Million</b>

\* PBI are agreed milestones with NDA which result in payment of fee.

## PRODUCTION

	June	2010 - 2011
Low-level waste processed for disposal:	<b>330</b> drums	<b>1250</b> drums
Raffinate liquor converted to solid intermediate-level waste:	<b>0</b> drums	<b>81</b> drums

## HEALTH & SAFETY

Number of reportable radiological events:	<b>0</b>	<b>0</b>
Number of events on International Nuclear Event Scale:	<b>0</b>	<b>0</b>
Number of Lost Time Accidents (LTA):	<b>1</b>	<b>1</b>
Total Recordable Incident Rate: <small>Compares injury and illness rates per 20,000 hours worked</small>	<b>0.38</b>	
RIDDOR reportable occurrences:	<b>1</b>	<b>1</b>
Hours worked since last LTA:	<b>1,850,000</b>	
Maximum individual radiation dose (DSRL):	<b>1.78</b> mSv	
Maximum individual radiation dose (non-DSRL):	<b>1.37</b> mSv	

Stated doses are one month behind, due to processing time.

## ENVIRONMENT

Events reported to regulator:	<b>0</b>	<b>0</b>
Amount of paper recycled:	<b>8080</b> kg	<b>8080</b> kg
Amount of metal recycled:	<b>6540</b> kg	<b>6540</b> kg
Amount of cardboard recycled:	<b>4600</b> kg	<b>4600</b> kg
Particles recovered from local beaches:	<b>0</b>	<b>4</b>

## PEOPLE

Full time DSRL staff:	<b>866</b>
Part time DSRL staff:	<b>67</b>
Contractor staff:	<b>910</b>
Gate-held passes (infrequent users):	<b>140</b>



Preparations are underway for the next phase of work to dismantle the former uranium recovery plant.

Workers are putting containment in place around the redundant UO3 process line and start to strip out items.

It follows the successful decommissioning and dismantling of the thorium evaporator process line. The series of vessels, pipes and boxes was cleaned out and broken up, producing almost nine tonnes of low-level waste and 315kg of intermediate-level waste.

Approximately one third of the chemical plant has now been stripped down and cleared. The building itself is scheduled for demolition in 2019.

UKAEA donates £2500 to Dounreay Communities Fund for each month without a Lost Time Accident (LTA)



**Total = £5,000**

**DFR**

By the end of June, 131 out of 335 batches of liquid metal from the Dounreay Fast Reactor had been destroyed successfully.

Over 220m<sup>3</sup> of contaminated water from the east and west ponds at DFR was abated and discharged to sea from the east and West ponds. More than half the water has now been treated successfully. Plant shielding is being increased to support full pond emptying, with sludge removal due by the end of March 2011.

A cover building, lighting and electrical supplies were installed in preparation for a camera investigation of the dirty dump tanks.

A detection probe lowered into the reactor showed a reduction in radiation on the underside of the vault roof since the last check in 1999. Further readings will be taken as the liquid metal levels are reduced further.

Trials are being carried out to establish the safe conditions for handling of NaK residue during reactor dismantling.

**PFR**

The Sodium Inventory Disposal plant destroyed another load of complex geometry, alkali metal-

wetted waste. The plant safety envelope has been extended to permit loads up to 40kg.

Thirteen expressions of interest were received for design of a low level waste size reduction facility and six companies selected for tendering.

Removal of the dirty dump tanks was on hold pending outcome of an investigation into a sodium fire on May 28.

**FUEL CYCLE AREA**

Decommissioning of the post-irradiation examination facilities was interrupted while repairs were carried out to the building crane.

Preparatory work got underway for the next stage of decommissioning the uranium recovery plant – the dismantling of the UO<sub>3</sub> process line.

Decontamination continued of the Alpha Laboratory glove-box.

In the D1200 labs, lab 90 cell 1 and lab 77 cell 11 were cleaned out.

The 20th drum of breeder material from DFR was successfully emptied and its contents de-clad.

**PROGRAMME**

DSRL submitted a “baseline

snapshot” of its revised programme, capped at £150m per annum, to the Nuclear Decommissioning Authority in support of its competition for the site.

A revised strategy for reactor dismantling was submitted to the NDA on June 16.

**SAFETY**

All workers at the site took part in a safety stand-down on June 30, following concern about a number of recent incidents.

A worker suffered a broken ankle on June 10 after stumbling on uneven ground. This was a lost-time accident, bringing to an end a run of 4.67 million man-hours without a lost-time accident.

Dounreay participated in relevant aspects of the annual demonstration exercise held at the neighbouring Vulcan site on June 23.

The latest site-wide challenge to focus attention on aspects of safety, environmental or security performance is to identify 60 examples of good practice.

Union safety reps John Deighan and Avril Ross collected an International Safety Award on behalf of the site at a British Safety Council function in London.

**ENVIRONMENT**

The programme for producing environmental support files was completed. Some work continues on related standards and methodologies.

The Nuclear Decommissioning Authority published site specific baselines for its sites, including Dounreay, as part of its strategic environmental assessment

**SECURITY**

An exercise held on June 30 was deemed a satisfactory demonstration of the site's arrangements.

**GENERAL**

A 4-minute film about the clean-out of the pulsed column lab and a film of the removal of a crane from the Fuel Cycle Area were released to the site website. A 25-minute version of The Dounreay Sphere – Design and Construction, a black and white film made in the 1950s, was re-released via the site website. DSRL published its annual report and accounts for 2009/10.

**Site closure programme at-a-glance**

**Forecast staffing levels**

Date	Milestone	Cumulative cost
2010	MTR reprocessing plant decommissioned	
2013	Bulk liquid metal destroyed at DFR	
2014	LLW disposal site opens	
2016	Breeder removed from DFR	
2018	High-active liquor tanks emptied	
2021	Fast reactor reprocessing plant decommissioned	
2023	Start Landfill closure	
2025	All LLW facilities cleared	Interim End State - £2.6 bn
2027	Low level waste site capped	
2057	Intermediate-level waste removed	
2078	Fuel and waste stores cleared	
2294	All land available for re-use	End State - £3.2 bn

**NDA competition for DSRL**

- Industry days for bidders – Feb/Mar 2010
- Tendering – Winter 2010
- Preferred bidder – Summer 2011
- New company takes over DSRL – Winter 2011

**Annual funding limits set by NDA**

Year	Status	Amount
2010/11	(confirmed)	£150 million
2011/12	(confirmed)	£150 million
2012/13	(provisional)	£150 million



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