

# 03/09 PERFORMANCE



Dounreay Site  
Restoration Ltd

Site clean-up performance report for  
**March 2009**

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

## DFR team gets the NaK

Work is underway again to rid Dounreay of one of its biggest hazards – the highly contaminated liquid metal inside its experimental fast breeder reactor.

It follows a major overhaul of the chemical plant designed to treat and destroy the 57 tonnes of sodium-potassium alloy contained in the reactor's primary cooling circuit.

A valve leaked during active commissioning of the plant last September and this resulted in a five-month delay while modifications were made.

Following rigorous checks and testing, the plant was declared fit to restart during March and immediately resumed its work.

By the end of March, it had processed a total of 2.4 tonnes.

The sodium-potassium alloy, known as NaK, is heavily contaminated with radioactive caesium, and the major challenge during active commissioning of the plants has been to reconfigure the ion exchange clean-up process to improve its performance.

The commissioning team worked closely with regulators throughout an independent investigation and subsequent

review of the plant.

Management shared their experiences to fully understand the cause of the leaks, which was mainly attributed to incompatibility between sealing threads and materials with ageing pipework.

"The DFR NaK represents one of the highest hazards on the Nuclear Decommissioning Authority's sites and we must ensure we meet the necessary safety and environmental standards," explained Mike Brown, fast reactors decommissioning unit manager.

"When working with complex plants built to strip out a fifty-year-old nuclear facility you have to be prepared for challenges of this nature and I can't commend the team enough for embracing the lessons we have learned and developing an ongoing improvement programme which is clearly working given this achievement.



**1 9 1**

months until shutdown



# PROGRAMME PERFORMANCE REPORT

March 2009

## PROGRAMME DELIVERY

Schedule Performance Index (SPI)

Year to-date	Year-end forecast
<b>0.93</b>	<b>0.93</b>

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

Cost Performance Index (CPI)

Year to-date	Year-end forecast
<b>1.04</b>	<b>1.04</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	Year-end maximum forecast for project delivery
<b>£4.39 million</b>	<b>£4.39 million</b>

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

## PRODUCTION

	March	2008 - 2009
Exempt waste removed from site:	<b>62 tonnes</b>	<b>201 tonnes</b>
Low-level waste processed for disposal:	<b>262 drums</b>	<b>4480 drums</b>
Raffinate liquor converted to solid intermediate-level waste:	<b>98 drums</b>	<b>627 drums</b>

## 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>4</b>	
Total Recordable Incident Rate: <small>Compares injury and illness rates per 20,000 hours worked</small>	<b>0.36</b>	
RIDDOR reportable occurrences:	<b>0</b>	
Hours worked since last LTA:	<b>330,000</b>	
Average radiation dose to DSRL workforce:	<b>0.03 mSv</b>	
Maximum individual radiation dose:	<b>0.50 mSv</b>	
Average radiation dose to non-DSRL workforce:	<b>0.04 mSv</b>	
Maximum individual radiation dose: <small>Stated doses are one month behind, due to processing time</small>	<b>0.69 mSv</b>	

## ENVIRONMENT

Events reported to regulator:	<b>0</b>	<b>0</b>
Radiological discharges as proportion of authorisation:	Reported quarterly on the website	
Amount of paper recycled:	<b>11,280 kg</b>	<b>48,205 kg</b>
Amount of metal recycled:	<b>4,400 kg</b>	<b>235,161 kg</b>
Amount of cardboard recycled:	<b>0 kg</b>	<b>22,3400 kg</b>
Particles recovered from local beaches:	<b>6</b>	

## PEOPLE

DSRL (full time equivalents):	<b>945.9</b>
Sub-contractors (number of passes held):	<b>1106</b>



Britain's experimental criticality laboratory was consigned to the history books in March.

The last of four cells used in the 1950s and 60s to generate small-scale nuclear reactions was bulldozed.

More than 110 redundant facilities have now been cleared away as part of

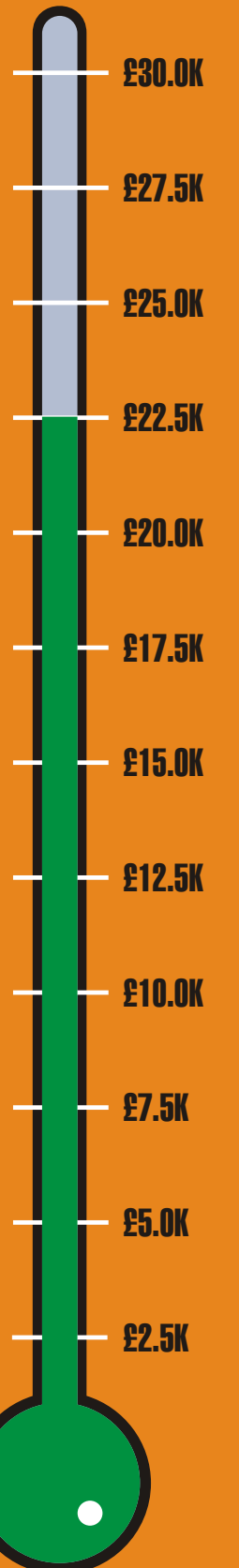
the site closure programme.

The last cell to be cleared was the plutonium test facility. It took eight years and more than 20,000 separate entries by workers wearing

protective airline suits to clean out and demolish.

NDA director Jim Morse was among the first to see the cleared site when he visited Dounreay in March.

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



**Total = £22,500**

### Pulsed column lab

Twenty-seven glass columns were successfully decontaminated following their removal from the experimental reprocessing plant known as the pulsed column laboratory. Decommissioning of the glovebox in the lab was completed.

### MTR reprocessing plant

In the materials test reactor reprocessing plant, the north sample control panel strip out and access door fitting for MA cell have been completed.

### Shaft and silo

Underground services were diverted in the latest phase of ground enabling works at the site of the proposed shaft and silo retrieval facilities.

New pipe-work, filtration and containment were safely installed along with the leak detection equipment at the ILW silo.

The successful isolation of the shaft was singled out for praise in the annual Construction News Specialist Awards.



### PIE facility

In the post-irradiation examination facility, cell bench waste continues to be removed for packing as ILW. Plasma cutting continues in the south cell and the vent duct of the north cell and loading bay glovebox have been removed.

### New ILW plant

Underground services were diverted and more ground excavated in preparation for the construction of a major new intermediate-level waste treatment plant.

### D1200 labs

The decommissioning of redundant labs in D1200 continues to progress well. Secondary lead all shielding was removed in Lab 77/78 cell line 1-8.

### FCA ventilation

With two new stacks now in place, work continues on the mechanical installation of interconnecting ductwork for the new ventilation system serving a number of plants in the Fuel Cycle Area.

### LLW site

Following delays caused by poor weather, the latest phase of investigative drilling was completed for the proposed LLW disposal facility.

### Contaminated land

DSRL published its strategy for dealing with contaminated land as part of the site closure programme.

### Nuclear material

A physical inventory of nuclear materials held was carried out and verified by inspectors from the EU safeguards organisation. The checks confirmed the site is performing well against standards for the control of nuclear material.

### Safety

DFR recorded 4305 days without a lost-time accident by the end of March.

Risk assessments were the theme of a health and safety week held during March.

DSRL has picked up an international award from the British Safety Council for its performance during 2008.

A new site safety challenge was launched, focussing on compliance with fire safety regulations. A target of 60 days without any non-compliance has been set.

### Construction

About 100 companies were

represented at a one-day event in Thurso to elicit interest in the construction of three major new facilities for site decommissioning. These are an ILW treatment plant, the LLW disposal site and waste retrieval from the shaft and silo.



### UKAEA Ltd

The Government announced it is selling UKAEA Ltd, parent company of Dounreay Site Restoration Ltd. Government Minister Pat McFadden said the sale "will increase efficiency, competition and value for money for the taxpayer in the decommissioning and clean up work of old nuclear power stations".

### Workforce

The first national skills awards organised saw two DSRL employees earn plaudits - Jillian Bundy of Training at Naver won the award for outstanding leadership and apprentice Michael Miller was named student of the year. The National Skills Academy for Nuclear and Cogent sector skills council organised the awards.

Work continued on the reactors amalgamation project, with interviews held for key management positions.

A new business spin-out project board has been established as part of the site's efforts to support the regeneration of the local economy. The board has reviewed the business plan for spinning out the non-active laboratory and agreed it can proceed to the next stage.

A preferred bidder was announced for the acquisition of UKAEA's Information Systems and Technology group. ISAT provides IT services under

contract to DSRL.

DSRL announced a cycle-to-work scheme, offering staff significant reductions on the cost of a bicycle in return for using it to travel to and from work.

### Dounreay Castle

Cruden Associates carried out a survey of Dounreay Castle following further deterioration in its condition.



### Visitors

- Malcolm Cooper and Deborah Mays, Historic Scotland
- Jim Morse, Nuclear Decommissioning Authority
- LLW Repository Ltd, Cumbria.

