

# 07/09 PERFORMANCE



Dounreay Site  
Restoration Ltd

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

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

# Monster pipe removed from reactor

Decommissioning experts at the Prototype Fast Reactor have successfully removed a huge, hockey stick shaped pipe from the steam generating building.

This huge curved pipe, twelve metres high and weighing four tones, was part of the reactor's heat transfer system and would have fed sodium from the secondary circuits into the colossal dump tanks below in the event of an emergency.

There were two pipes per tank, one for effluent and one for vent. The vent pipe was removed a few years ago. In a delicate operation, the remaining effluent pipe was chopped off and lifted, tilted, turned and lowered to the ground. With very little margin for error this was a highly intricate process using a crane to hoist the structure nearly ninety feet into the air.

Work to pull apart the former reactor is rapidly advancing with more and more large items of redundant equipment being ripped out of the building as the plant is dismantled.

Simon Coles, PFR projects delivery manager, said: "Dounreay is amongst those leading the way in world-wide clean-up of former nuclear facilities, and as demolition progresses removal of massive and extremely heavy steel structures presents a challenging task to the site.

"The strip-out of the steam generating building and removal of redundant plant and equipment is integral to the decommissioning of PFR and meeting the Nuclear Decommissioning Authority's site restoration plan.

"DSRL's project manager, Rashid Abdulla, and his team, are working extremely hard to ensure the safe and successful stripping out of this area as part of the reactor's dismantling."



**1 8 7** months until shutdown

# PROGRAMME PERFORMANCE REPORT

July 2009

## PROGRAMME DELIVERY

### Schedule Performance Index (SPI)

Year to-date	Year-end forecast
<b>0.97</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>1.10</b>	<b>1.02</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
<b>£325.5K</b>	<b>£5 million</b>

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

## PRODUCTION

	July	2009 - 2010
Exempt waste removed from site:	<b>0</b> tonnes	<b>12</b> tonnes
Low-level waste processed for disposal:	<b>397</b> drums	<b>1585</b> drums
Raffinate liquor converted to solid intermediate-level waste:	<b>258</b> drums	<b>561</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>0</b>	<b>0</b>
Total Recordable Incident Rate: <small>Compares injury and illness rates per 20,000 hours worked</small>	<b>0.32</b>	
RIDDOR reportable occurrences:	<b>0</b>	<b>0</b>
Hours worked since last LTA:	<b>1,510,000</b>	
Average radiation dose to DSRL workforce:	<b>0.05 mSv</b>	
Average radiation dose to non-DSRL workforce:	<b>0.05 mSv</b>	

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>5,290</b> kg	<b>18,500</b> kg
Amount of metal recycled:	<b>9,260</b> kg	<b>36,040</b> kg
Amount of cardboard recycled:	<b>3,500</b> kg	<b>7,270</b> kg
Particles recovered from local beaches:	<b>0</b>	<b>15</b>

## PEOPLE

Full time DSRL staff:	<b>971</b>
Part time DSRL staff:	<b>62</b>
Contractor staff:	<b>948</b>
Gate-held passes (infrequent users):	<b>120</b>



Nuclear sites across Britain are showing interest in the discovery by workers at Dounreay that one of the country's best-selling household cleaners removes plutonium stains more effectively than many industrial clean-up products.

The discovery came when a decommissioning team found their normal cleaning fluid was slowing down work to dismantle an experimental chemical plant used in the 1980s to recycle plutonium liquor.

One of the team suggested trying Cillit Bang, after watching a television advert that suggested it could strip grime instantly from a 2p coin.

The idea was taken up by managers who ordered tests on the £1.99 household cleaner. These confirmed its effectiveness and the product is now playing a key role in keeping on the track the clean-out and

demolition of the plant, a test-bed for the giant THORP reprocessing plant at Sellafield.

The nuclear site in Cumbria is among those who have been in touch with Dounreay to learn more about the discovery.

David Manson, project manager with Dounreay Site Restoration Ltd, says it is a good example of innovation driving down the £2.6 billion cost of demolishing the site.

"We need to decontaminate as much of the surfaces as possible before we can cut them up," explained David Manson.

"The normal decontamination agents we'd use on steel and glass need time to dry and this slowed us down. The acids that had been used years

ago also created problems. It meant we had to think carefully about the most effective way to wipe the plutonium from the steelwork before we could cut it up."

The 15-strong clean-up team wear whole-body plastic suits with their own oxygen supply and often need 4 or 5 layers of gloves to protect them from radiation.

They are now using Cillit Bang to clean out the ancillary plant, such as ventilation ducts.

"The ductwork is stainless steel and contamination levels upstream of the filtration units have been measured in thousands of counts per second. These levels have been reduced to 20 or 40 counts following spray and wipedown with Cillit Bang."

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



**Total = £10,000**



**DFR**

DFR has processed 43 NaK batches to date. During work to replace a filter element in the NaK disposal plant, two operators were identified as having contamination on their hands. An internal investigation identified a number of improvements to be made and lessons learned.

**PFR**

Work on the sodium transfer lines is being carried out in preparation for the final sodium disposal plant campaign.

**D2900**

The "screw bed" reactor removed from D1203 has now been decontaminated in D2900.



**D1203**

Eight legacy waste bins have been repacked in D1203 this financial year, making the project ahead of schedule. In a separate area of the plant, two reprocessing gloveboxes have also been dismantled following their clean up.



**D1200 Lab 77/78**

Decommissioning of the cells in Lab 77/78 is progressing well.

**D1217**

The roof of the south cell has been decontaminated and waste

from the dismantled cell benches has been removed.

**D1209 ventilation project**

The new ventilation system is being pressure tested, while cabling continues to be installed.

**Low level waste pits**

Survey and decontamination of the pit cover buildings in preparation for their demolition has been completed.

**Dounreay Cementation Plant**

A total of 39m<sup>3</sup> of raffinate has been cemented in DCP this financial year.



**Particle monitoring and retrieval**

The off-shore particle retrieval continued, with 6.5 hectares of

seabed monitored.

**Health and Safety**

An audit team from the British Safety Council were on site in July to conduct a week-long health and safety audit of the site's management systems.

**Visits**

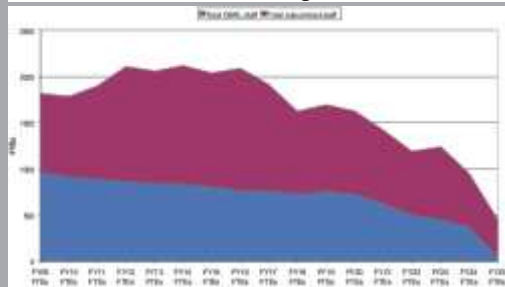
During July, the site hosted visits from:

- Judges for the ICE Saltire Awards, visiting the shaft which has been nominated for an award;
- Second and third year degree students working at Sellafield;
- Ex-Dounreay apprentice Jim Thomson, from the first intake of apprentices in 1955;
- Mary Scanlon MSP and Alastair Graham, Conservative prospective parliamentary candidate for Caithness & Sutherland.



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

**Forecast staffing levels**



**Annual funding limits set by NDA**

<b>2009/10</b> (confirmed) £156.7 million	<b>2010/11</b> (provisional) £154.8 million	<b>2011/12</b> (provisional) £183.7 million
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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	Shaft and silo emptied	
2025	All redundant 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 day for bidders – Winter 2009
- Tendering – Autumn 2010
- Preferred bidder – Spring 2011
- New company takes over DSRL – Autumn 2011

