

## **Dounreay Report**

### **Progress report, October 2015**

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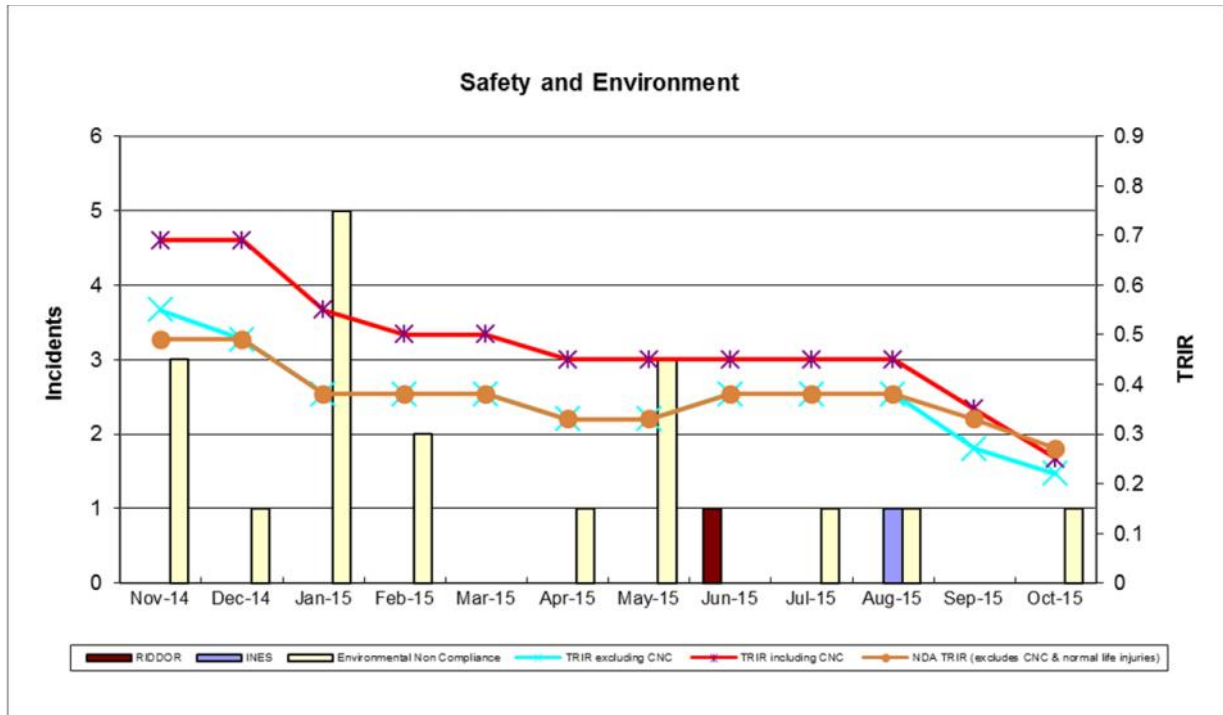
#### **Site Decommissioning Programme**

The site continues to focus on delivery of the programme. The programme for the transport of the nuclear material to Sellafield remains high priority. After some delays, the programme is now returning to the original business case timelines.

#### **Dounreay Improvement Team update**

The Dounreay Improvement Team (DIT) continues to address a number of safety and environmental behaviours:

- The revised Conduct of Operations Manual has now been approved and has been rolled out site-wide.
- Supervisory training courses have now commenced.
- Safety seminars are being held on a regular basis. As an example one was held on 28<sup>th</sup> August concentrating on lifting operations.
- The Improvement Team were represented at the 75<sup>th</sup> BP UK Safety Reps forum which looked at areas of safety leadership principals and why people don't follow procedures.
- Management walkabouts are now regularly taking place.
- The encouragement of Second Nature conversations continues to be promoted, recorded and communicated site-wide.
- The team is currently reviewing a new initiative associated with Learning from Experience. The results of feedback are being presented internally at the end of October.
- The ONR enforcement notice has been closed out and SEPA has accepted the site's forward action plan with a completion date of 30<sup>th</sup> December.

**Health, Safety, Security and Environmental**


- In July 2015 corrosion was found in the ventilation system for the D1226 and D1200 stacks. The labs are used for chemical analysis and are ventilated via a filtration unit. SEPA was immediately informed. The site's authorisation to discharge from these outlets requires the equipment to be kept in good repair and to check them at an appropriate frequency. As a result, SEPA have issued a warning letter. They expect an improvement of our inspection and maintenance regimes for environmental systems.
- On 6<sup>th</sup> August the PFR team were removing equipment from the Irradiated Fuel Cave at PFR for packaging and disposal which required a lifting operation using a PFR crane. During this lift there was a snapping noise and the item dropped approximately 20 feet. There were no injuries, no release of radioactivity and the cell containment was preserved. Work was stopped immediately and an investigation launched. The NDA and regulators were notified. The actions identified in the investigation are now being implemented and lesson learned have been communicated to the workforce.

As a follow on to this a mandatory safety pause was organised for half an hour for all Dounreay staff and contractors, to remind them of the importance of complying with procedures.

- On 25<sup>th</sup> August DSRL informed SEPA that there had been a non-radioactive low hazard powder release at the encapsulation plant. The encapsulation plant is the facility where ISO containers of solid low level waste is grouted using a cement mixture. The powder – which was a Pulverised Fly Ash (PFA) was released as a result of a rupture to a flexible connector. Operations were quickly

stopped and clean-up started immediately. PFA is not especially hazardous to health. A site investigation has been carried out and actions have been identified.

- After 124 days without a lost time accident, a contractor's employee was injured on site on 12<sup>th</sup> October. The person was walking across the stores loading bay when he saw a van draw forward. The person walked behind the van in the mistaken belief that the van would continue to drive forward. Instead the van slowly reversed and hit the person on his right knee who then fell to the ground. This has resulted in a lost time injury. A level 2 investigation has been convened and lessons learned will be communicated in due course.
- European Health and Safety Week at Dounreay took place week beginning 26<sup>th</sup> October 2015. The main theme for the week was healthy workplace and managing stress.
- SEPA has refused the site's application for surrender of our landfill license. Site management is currently evaluating SEPA's position and considering options. The deadline to respond is January 2016 and therefore DSRL will work with SEPA to come up with the best way forward.
- SEPA has granted a variation to the licence that covers water abstractions from the excavated areas surrounding the new low level waste disposal vaults. The variation has removed the daily abstraction limits and replaced them with a single combined annual limit.

#### **Site Performance**

Appendix 1 provides an update of the key project milestones for 2015/16. Specific performance achievements are:

- **Dounreay Fast Reactor (DFR):**
  - Extraction of the NaK from the hot traps has commenced in the NaK Disposal Plant with treatment of the first batch underway. It is expected that this process will take two months and is an important step in preparing the reactor for water vapour nitrogen treatment of the residual NaK.
  - Work continues to install new heaters into the Coolant Monitoring Circuit. The redundant heaters were removed and a new control panel was tested and received on site. The work will melt solid NaK trapped in the circuit, allowing it to drain to the reactor where it will be removed and processed in the NaK Disposal Plant.
  - Offsite trial work for the pond wall cutting equipment has been completed. These trials created a full scale mock-up of the DFR pond to allow comprehensive testing of the concrete saw, scaffolding system and materials handling activities.
  - The remedial works to improve the reactor gas blanket reliability is now complete. The gas blanket maintains an inert atmosphere inside the reactor and circuit, preventing a reaction of residual NaK with air.

- **Prototype Fast Reactor (PFR):**

- On site trials of a multi position grab tool have commenced. These trials will be used to support reactor dismantling. The trial was tested in a full scale mock-up located in PFR.
- Tanks 3 and 4 in the PFR Tank Farm have now been sealed – this is an important step in preparing the tanks for their final treatment.
- Successful removal and disposal of the two 15 tonne surge pit vault plugs was carried out and these have been replaced with a removable steel cover plate. This will allow removal of the seven surge tanks.
- PFR completed the clean-out of cell 1 in the steam generation building. The cell contained a redundant environmental enclosure and scaffold structure used to process sodium containing components. The area is now ready for demolition.
- The PFR team completed replacement of the seals on the 36-inch adaptor valve.
- A remote camera inspection of the PFR PCTL internal components to assess the condition of the shield plug tie bars was completed. The inspection was to ensure that the bars are sufficient robust to extract the shield plug and filter assembly.

- **Fuel Cycle Area:**

- The D1217 team are decommissioning the store and workshop annex in D1217 in preparation for cell dismantling.
- Work has also commenced on the north side of the shielded cell in D1206 with the removal of the transfer tunnel wall cladding and partitions. This is the first time that the cell wall has been exposed since its early operational DFR fuel reprocessing days.
- Removal of the D1211 east duct pipework is complete and removal of the north duct pipework has commenced.
- D1204 has now commenced the replacement of the building active extract ductwork.
- In D1206 repair work commenced with scaffold construction and containment build at AFC flask port. Removal of the Sample Tank Annex (STA) east sample station was completed.
- Decommissioning of DMTR (Dounreay Materials Test Reactor) continues with redundant electrical panel removal now complete.
- Lab 88 (in D1200) decommissioning fume cupboard removal is now complete with Lab 96 commencing containment construction. Ventilation repairs have also been completed.

- **Fuels:**

- DSRL continues to remove nuclear fuel and materials from the site in line with the NDA strategy to consolidate its inventory at Sellafield and we expect this high-priority work to take several more years to complete.

- **Waste:**

- Active commissioning of WRACS has continued well with 1218 drums of waste now supercompacted. Thirty nine half height ISO containers have been grouted and disposed of in the new low level waste facility. During October a fault developed that trips the compactor. Discussions are ongoing with the vendor and sub-contractor to identify a solution. Once this fault is rectified the final month of active commissioning will proceed.
- Active commissioning of the low level waste vault continues. To date over 1000 packages of demolition waste has been disposed.
- DSRL hosted a visit and technical discussion with three staff from Chapelcross site, for them to ascertain how Dounreay have developed designs of 500 litre drums as well as understand any associated technical and Letter of Compliance work that had been completed.
- Processing of DFR raffinate from tanks 6 /18 was completed, producing 509 drums.
- Trials for the formulation for PFR raffinate product continues. Initial scoping trials have identified cement powder which has the potential to form an acceptable product. Medium scale trials are now complete and results are being evaluated.

### General

The following are general updates:

- **Resources:**

|                | FTE target | FTE Actual/<br>Forecast |
|----------------|------------|-------------------------|
| Current – DSRL | 1237 (LTP) | 1043.5                  |
| Current – ASW  | N/A        | 182                     |

In October there were 11 new starts and 1 resignation.

- Phil Craig took over as Dounreay Managing Director at the beginning of October.
- Since August, 15 graduates have been recruited: six coming from the Caithness & North Sutherland area and two from the wider Highland area.
- Eight new apprentices have just joined us on site. This is the 60<sup>th</sup> group in a long line of young people who have been part of the apprenticeship scheme since 1955.
- Six trainees started the Project Control Trainee programme on September 16<sup>th</sup>. They will complete an intense basic training with Programme Office and a consultant trainer before moving out to support the Directorates.

- The Finance team has temporarily moved to the D3100 offices. Work is ongoing to relocate this team into Thurso within the Dounreay.com building.
- **Planning:**
  - In the Highland-wide Local Development Plan, the Highland Council identified the intention to prepare an updated version of the Dounreay Planning Framework (DPF) as Supplementary Guidance. DPF-2 is now available on the Highland Council and Dounreay’s websites. Work is now underway to develop the Dounreay Planning Framework 3 which covers the site activities from 2018 to 2030.
  - An emergency arrangement exercise took place on 14<sup>th</sup> October. The exercise was based on a RAM Transport exercise with fire brigade, ambulance and CNC in attendance.
- **Contracts**
  - Contracts for the Enabling, Crane design and Design/Safety Case for the DCP Store Extension has been awarded.
- **Presentations/visits/events:**
  - Site representatives presented at a seminar in Lerwick organised by Nuclear Free Local Authorities on the ongoing removal of nuclear materials. They also spoke at a meeting of Highlands Against Nuclear Transport in Dingwall. In addition, DSRL representatives attended the European Nuclear conference in Brussels on waste issues.
  - The site’s heritage officer co-presented a paper to the 2015 International Committee for the Conservation of Industrial Heritage on the Dounreay Heritage Partnership programme.
  - A PhD student is carrying out a study on “The Second Industrial Revolution – an exploration and analysis of the physical impact of the Dounreay Nuclear Research Establishment on the Far North of Scotland”. The PhD is a collaborative doctoral partnership between Historic Environment Scotland and University of the Highlands and Islands.
  - The site continues to support the Safe Highlanders event which is a programme of safety events for primary school children. Over 250 primary pupils took part.
  - Visits to the site continue at a steady pace with a variety of visitors including representatives from the Japanese Engineering Federation, NDA senior officials and North Highland College Business students.

**PROJECT MILESTONES FOR 2015/16**

| Directorate               | Milestone  | Target completion date. | Progress |
|---------------------------|--|-------------------------|----------|
| Technical                 | Initiate phase 3 planning application (2018 to Interim End State) by formal submission of development proposals to Highland Council. | 30-Jun-2015             | ✓        |
| Fuel Cycle Area           | D1211 – peripheral pipework strip out complete.  | 31-Oct-2015             | ✓        |
| Dounreay Improvement Team | Complete production of the revised MAN2004 Conduct of Operations Manual  | 30-Nov-2015             |          |
| Support                   | Nuclear Baseline approval by DSRL Safety Working Party.  | 31-Dec-2015             |          |
| Shaft & Silo              | PSR endorsed   | 31-Dec-2015             |          |
| Shaft & Silo              | UPP strip out complete.  | 31-Dec-2015             |          |
| Fuels                     | Award Contract for the Irradiated Flask  | 31-Dec-2015             |          |
| Technical                 | Develop current Business Critical Asset Care Plans to the next system or equipment level down.                                       | 31-Jan-2016             |          |
| Fuels                     | Complete Mezzanine Construction to DSRL hold point.  | 31-Jan-2016             |          |
| Security                  | Implementation of an integrated explosive search capability to the satisfaction of ONR (CNS).  | 31-Mar-2016             |          |
| Security                  | Information Assurance Maturity Model Level 3 achieved.   | 31-Mar-2016             |          |
| Support                   | Complete 10 Lean Events which demonstrate they have met the success criteria.  | 31-Mar-2016             |          |
| Fuel Cycle Area           | DMTR – Mezzanine Floor removal complete  | 31-Mar-2016             |          |
| Dounreay Improvement Team | Complete 50% of front-line Supervisors development against revised SERP and CDD.   | 31-Mar-2016             |          |
| Waste                     | Process 100 m3 of DFR raffinate through DCP  | 31-Mar-2016             |          |
| Waste                     | Process current arisings, plus the 3500 drums of the backlog of LLW drums through WRACS  | 31-Mar-2016             |          |
| Reactors                  | Commission DFR pond wall cutting equipment and initiate pond wall cutting.   | 31-Mar-2016             |          |
| Reactors                  | Commission PFR Decontamination Vessel and process the first component.   | 31-Mar-2016             |          |
| Assurance                 | Achieve 100% completion of Assurance elements of Internal Audit Plan for 2015/2016.  | 31-Mar-2016             |          |
| Assurance                 | 90% of Action Review Meetings to be held within 5 working days of the Investigation Report being issued to Assurance.                | 31-Mar-2016             |          |

**GLOSSARY**

| <b>Abbreviation</b> |  |
|---------------------|--|
| DACR                | Days Away Case Rate  |
| DCP                 | Dounreay Cementation Plant   |
| DFR                 | Dounreay Fast reactor  |
| DIT                 | Dounreay Improvement Team  |
| 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          |