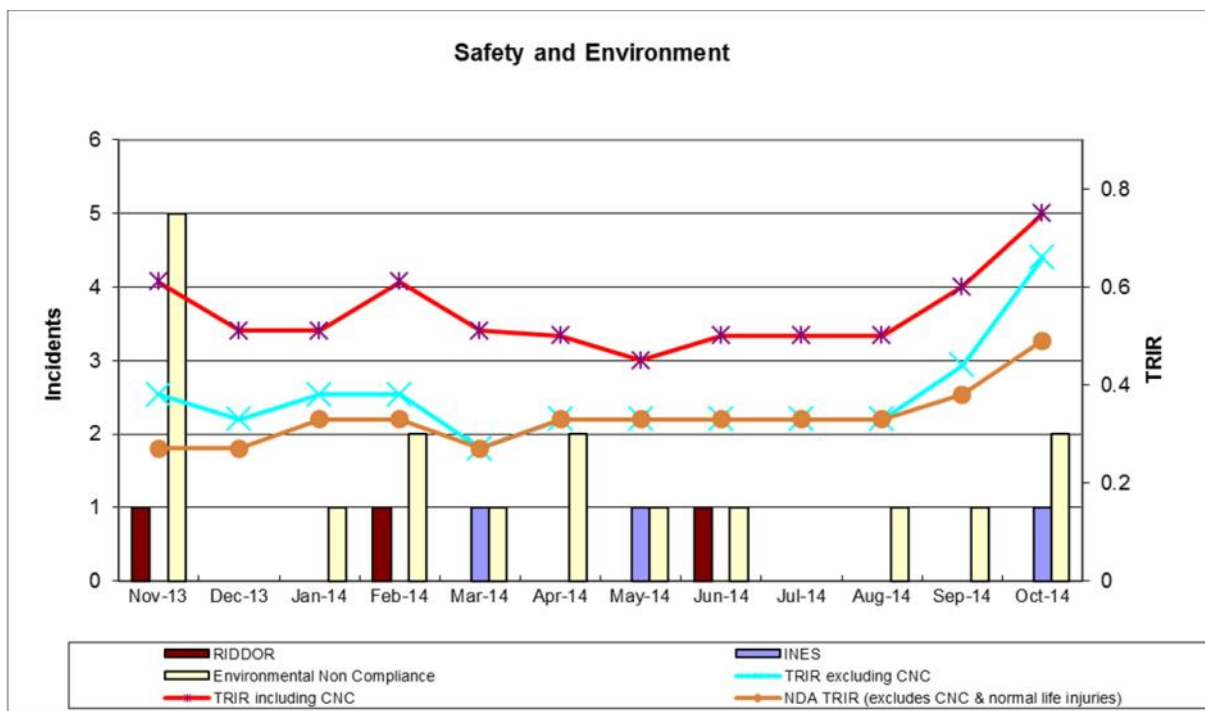


Dounreay Report Progress report up to end October 2014

Health, Safety, Security and Environmental



- A contractor received a cut to the back of a finger through a glove whilst handling cladding sheets. This injury resulted in one day of lost time and is therefore a Days Away Case (DAC).
- A DSRL employee felt a sharp twinge in the lower right back/pelvis area after walking down a steep verge of a temporary road to carry out borehole sampling. The injury resulted in physiotherapy and is therefore classed as an OSHA Medical Treatment.
- A cleaner was lifting a black bin bag which slipped from her hand resulting in a cut thumb on a food can within the bag. The injury required a single stitch which classes it as a Medical Treatment.
- In February 2014 a spent fuel can was being lifted to empty the PFR fuel pond and the lifting pintle became detached as a result of corrosion. Closer inspection indicated the possible leakage of gases. This was reported to SEPA and DSRL assumed that the full gaseous contents had been released. The discharge was fully accommodated within the extant Authorisation. Further releases of gas were noted during the period May and June. DSRL proposed a methodology to allocate the release over a longer period of time and following agreement with SEPA reduced the estimated release in March and allocated proportions of

the inventory for release for future months. This revised approach meant that the new stack group limit, as stated in the new RSA Authorisation which came into effect in April 2014 were exceeded.

- In September, a failure in the glovebox extraction ventilation fan showed that the back-up fan did not automatically start. The stand-by fan was manually started then cut out resulting in no ventilation to the glove boxes in several of the laboratories in the Fuel Cycle Area. As required by the working instructions personnel left the facility. DSRL has investigated and found that during maintenance of a pressure vessel resulted in loss of air to operate the ventilation dampers.
- The suspended solids limit for the site's Waste Management Licence was slightly exceeded. A visual inspection of the sample chamber identified higher than usual levels of sewage sludge which combined with low flow because of the lack of rainfall is the most likely cause of the high solids concentration. This was reported to SEPA.
- On 7th October a fire occurred in the PFR sodium tank farm. The Dounreay Fire Brigade was called and the area made safe. The fire was quickly extinguished and the area confirmed to be safe within 30 minutes with no harm to personnel. The NDA and regulators were informed and a formal investigation has been completed. As part of the investigation, DSRL concluded that there may have been a release of radioactivity via an unauthorised route. SEPA were informed.
- On 7th October the MV Parida, carrying drums of Belgian waste had a fire in one of its two funnels. The fire was extinguished but the vessel was unable to restart its engines. The vessel was towed to port where it undertook the necessary repairs and resumed its journey.
- DSRL attended a multi-agency table top workshop in support of the movement of unirradiated exotic fuels from Dounreay. ONR gave a positive evaluation of the three day event.
- A trial of the equipment and vessel to allow the use of the sea route has been completed. The outcome of the trial will inform a future decision on the use of this route.
- Beach monitoring for particles will be carried out at Strathy, Murkle, Sandside and Dounreay foreshore (east and west) during November. A new monitoring vehicle is now available to assist with the additional survey work required as part of the new RSA authorisation.

General

- The re-profiling of the decommissioning programme remains on target for formal submission to the NDA in November. The scenario review has now been completed by the Parent Body Organisation and the revised baseline is being developed with the NDA Site Facing Team (SFT) being appraised weekly on progress and engaged in discussion on key

elements of the proposal. As indicated, a presentation on the new plan will be provided to DSG in December.

- At end October 2014, the overall cumulative cost and schedule performance index is 0.94 and 0.89 respectively.

DSRL remains confident that the schedule performance will be addressed over the coming months and that improvements planned by financial year end, will improve this performance. Improvements will be realised through the completion of a number of activities (glove boxes, D3100 and Encapsulation Plant) and the implementation of change controls, most notably security enhancements and fuels.

Reactors decommissioning

The execution year to date (April 2014 to October 2014) has the Project behind schedule (SPI¹ 0.94) and in a negative cost position (CPI² 0.85). The cumulative to date (April 2012 to October 2014) position shows the Project behind schedule (SPI 0.98) and in a negative cost position (CPI 0.89). The cost is due to the additional efforts required for the NaK optimisation programme and issues with the Waste Packaging Scheme Design at PFR. The fiscal year end cumulative projection (April 2014 to March 2015) is that the project improve schedule with a slight decline on CPI.

Dounreay Fast Reactor (DFR)

- The 1.1 te gamma gate was removed from the reactor top which allows access to one of the hot traps to fit a dip leg which is required for NaK extraction. The dip leg has now been installed.
- Inspection and disposal of waste from the Element Storage Building (ESB) store continues. A number of components were determined to be free of alkali metals and was subsequently disposed of appropriately. This work has resulted in a significant reduction of dose rate.
- Trials for the use of a gamma camera were completed in preparation for the installation of the gamma camera into the reactor vault. This enables Phase 1 of the Reactor Gamma survey to be complete by end of December 2014.
- An asbestos survey in the sphere skirt area was completed. The report is currently being finalised.
- Removal of a redundant standby diesel generator used to provide back-up power to the statutory stack sampling equipment is complete.

¹ SPI is schedule performance index and is a ratio of the Budgeted Cost of Work Scheduled (what you said you were going to do) and Budgeted Cost of Work Performed (what you did). Numbers larger than 1.00 indicate that the project is ahead of schedule; numbers less than 1.00 indicate that the project is behind schedule.

² CPI is cost performance index and is a ratio of the Budgeted Cost of Work Performed (what you did) and the Actual Cost of Work Performed (what it cost you to do the work). A CPI of 1.00 indicates that £1.00 of work has been complete for £1.00. Numbers larger than 1.00 indicate that more work has been done for less money than planned.

Prototype Fast Reactor (PFR)

- The PFR decommissioning team have successfully test lifted the 36-inch flask with the Flask Arrestor Gear Crane. Several manoeuvres were carried out to ensure the safe landing on the reactor vessel. The crane refurbishment and commissioning is key to support reactor dismantling.
- Isolation of the Primary Cold Trap Loop (PCTL) has been completed. Letterbox cut-outs were made in the secondary piping before completing the welding of six bosses. Approx 22 Te of concrete and steel waste associated with the isolation work was removed from the reactor hall.
- The concrete shielding above the Argon Gas Blanket (AGB) surge pipe has been removed to expose a section of pipe to allow the isolation of the surge pits, AGB vaults and reactor vessel. This resulted in about 18 Te of concrete being removed and disposed of.
- Work to complete the removal of the Thermal Syphon A carcass is complete. This involved a technique which allowed the structure and steelwork to be stripped out more efficiently than standard cutting/grinding techniques.
- Installation of the PFR Low Level Waste cutting facility posting port is now complete and preparations are now underway to fit the ventilation system to the cutting facility.

Fuel Cycle Area Decommissioning

The Fuel Cycle Area execution year to date (April 2014 to October 2014) has the Project behind schedule (SPI 0.93) and in a negative cost position (CPI 0.84). The cumulative to date (April 2012 to October 2014) position shows the Project on schedule (SPI 1.00) and a negative cost position (CPI 0.93). The fiscal year end (April 2014 to March 2015) cumulative projection is that the project schedule performance will out-turn at 0.97 and there will be a continued degradation of CPI (0.70). The cost impacts are primarily associated with maintenance costs, but utilities costs and health surveyor costs have also contributed to the current status. A review of costs has been carried out to manage and control costs in the future.

- **EP USA** Diamond wire cutting has commenced to allow the removal of the cell structure as bulk waste. This is the first use of this technique within this facility to prove the concept. The control room panels have been prepared for transfer to Caithness Horizons museum during November. Ground floor waste packaging and disposal is in progress.
- **E 4: 11A** Final radiological surveys and waste removal is nearing completion which allows for a reduced maintenance regime and the building to be categorised as 'cold and dark'. Useable equipment has been transferred for use by other projects across the site.
- **E 2416A** Removal of intermediate level waste (ILW) from the caves is progressing steadily with an overall reduction of the inventory within the building. Redundant glovebox

decommissioning is underway with the removal of the first sample tank annexe glovebox underway. Preparations for removal of the next two gloveboxes have also commenced.

- **E 2422:** Installation of the new stack is now complete with the installation of stack sampling equipment continuing. Final changeroom refurbishment has been completed to allow preparations for decommissioning of the liquid effluent tanks.
- **E 2417:** Preparations for inactive commissioning of the pond clean-up unit is now complete.
- **E 2411:** The lab 33 blister cell shielding removal work is complete with the commencement of the next phase to remove the internal equipment.
- **E 2429:** Surveys of the north cell characterisation and out of cells areas waste removal are both progressing well.

Shaft/Silo Decommissioning

The Shaft and Silo project performance for the execution year to date (April 2014 to October 2014) has the Project behind schedule (SPI 0.14) and in a negative cost position (CPI 0.60). The cumulative to date (April 2012 to October 2014) position shows the Project behind schedule (SPI 0.46) and in a negative cost position (CPI 0.79). The fiscal year end (April 2014 to March 2015) cumulative projection is that the project schedule performance will be 0.29 and the CPI will increase to 1.04. It is key to note that as a result of the overall scope increase and ASFL limits, the Shaft and Silo Programme has been slowed to accommodate expenditure on the Unirradiated Fuels Priority Programme. This will be addressed in Baseline Change Proposal (L14/010). Until this change control is implemented, Shaft and Silo are being measured against a plan which is not being followed and generates a significant negative performance variance.

- The operational research model for the updated process was delivered on time. The conclusions of this validate a number of key assumptions including the time to process waste and the number of waste containers which will be required.
- Initial small scale compaction trials are complete and have determined the amount of sludge in a supercompacted puck under various operations scenarios.
- The Design services sub-contract strategy is currently being developed.

Waste and Fuels

The Waste project performance for execution year to date (April 2014 to October 2014) has the Project behind schedule (SPI 0.91) and in a positive cost position (CPI 1.60) this is due to budget realignment in the waste project. The cumulative to date (April 2012 to October 2014) position shows the Project behind schedule (SPI 0.91) and a negative cost position (CPI 0.98). The fiscal year end cumulative (April 2014 to March 2015) projection is that the project schedule will improve and cost performance will deteriorate.

The Fuels project performance for execution year to date (April 2014 to October 2014) has the Project behind schedule (SPI 0.63) and in a negative cost position (CPI 0.85). The cumulative to date (April 2012 to October 2014) position shows the Project behind schedule (SPI 0.80) and in a negative cost position

(CPI 0.96). The fiscal year end (April 2014 to March 2015) cumulative projection is that the project schedule and performance will improve.

- **EM (C sf f ef § Mxf Am21)** transports of DFR Out of Reactor fuel have been successfully completed. Manufacture of equipment for primary cutting for the DFR Breeder Fuel Removal has been completed and offsite trials are progressing well.
- **S fu xs b p f lnc b a ctu fA** The 19th shipment of waste has been completed.
- **F ypl (d g f An** full rehearsal of transport of exotic fuel was undertaken.
- **F octr tx ar p(R noA** Inactive commissioning commenced in mid-September and will be complete by mid-October.
- **T xrf scpn r cul p(§ aSB DTOA** The replacement hydraulic hoses for the new supercompactor have been received and fitted. The Site Acceptance Tests for the new supercompactor have been completed.
- **D f nf a al p(R noA** DFR raffinate continues to be processed through the cementation plant. The final disposability assessment and Letter of Compliance have been received.
- **BE (M p(R noA** The detailed design continues with the production of detailed drawings nearing completion. Work is ongoing to complete the technical justification and associated specifications before moving to the manufacturing phase.
- **Wssc d af (Mxf (Di csc af d tal p(Mc d Ln) NNOA** The Pre-Construction Safety Report (PCSR) submission to ONR has been delayed until November 2014 to address comments following internal review. The Pre Commissioning Safety Report (PCmSR) has been initiated for inactive commissioning.

Support

The Support project performance for execution year to date (April 2014 to October 2014) shows the Project slightly behind schedule (SPI 0.95) and in a negative cost position (CPI 0.78). The cumulative to date (April 2012 to October 2014) position shows the Project slightly behind schedule (SPI 0.97) and in a negative cost position (CPI 0.97). The fiscal year end (April 2014 to March 2015) cumulative projection is that the project will be slightly ahead of schedule, but in a negative cost position. The support project holds costs for the Decommissioning of the Non-Active Facilities which are costing more than the budget. Support project also holds the costs for Special Items (CNC, Regulatory Charges, Asbestos, INS costs etc) which is reconciled by a change control each year.

- The Environmental Closure and Demolition Department (ECD) are continuing with the work required to implement the new Site Closure Safety Case, which will supersede the extant Contaminated Land Safety Case. The new Site Closure Safety Case will cover the full scope of ECD activities including demolition of facilities, and the characterisation, remediation and restoration of land.

Staffing

	FTE Target	FTE Actual /Forecast
Current - DSRL	948 (LTP)	955.7
Current – ASW	N/A	123

As of end October 2014:

- 14 new starts (includes 10 apprentices)
- 2 resignations
- 2 Retirements

Procurement update

- Representatives of DSRL Commercial Department attended the NDA Decommissioning Supply Chain event on 6th November 2014. This event is a key part of the NDA SME Programme.

Dounreay Site Restoration Ltd
11th November 2014

GLOSSARY

Abbreviation	
DACR	Days Away Case Rate
DCP	Dounreay Cementation Plant
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
PFR	Prototype Fast Reactor
PSR	Preliminary Safety Report
RIDDOR	Reporting of injuries, Diseases & Dangerous Occurrences Regulations.
RSA	Radioactive Substances Act
SEPA	Scottish Environment Protection Agency
SID	Sodium Inventory Destruction Plant
TRIR	Total Recordable Incident Rate