

Decommissioning Directorate Report to the Decommissioning Sub Committee

Directorate Business & Safety Performance Statistics at Year End (2009/10) :

TRI Total Recordable Incidents	12 (increase in the figure at the end of year 2008/09 which was recorded at 11.)		
DAC No of Days Away Cases	5 (increase in the figure at the end of 2008/09 which was recorded at 3)		
CPI Cost Performance Index	1.04 This is a positive out turn meaning that each pounds worth of work was delivered for 96p meaning a cost saving of 4p in every pound spent.		
SPI Scheduled Performance Index	0.95 This means that 95% of the scheduled work was delivered within the year.		
Performance Based Incentives (PBIs) 09/10	Target	Achieved	Missed
Overall Directorate Figures	26	23.25	2.75
Magnox Swarf Storage Facility	8	7	1
Magnox First Generation Storage Pond	4	3.25	0.75
Pile Fuel Storage Pond	4	4 *	0
Solid Waste Storage Silo	5	5	0
Site Remediation and Decommissioning Projects	2	2	0
Windscale	3	3	0

* The work involved in achieving this PBI was achieved but after the target deadline.

Integrated Change Programme

The Sellafield Integrated Change Programme (ICP) has been established to improve operational performance and efficiencies. In the Decommissioning Directorate, we are taking these performance opportunities and ensuring they are applied effectively through the local Decommissioning ICP. The goal of the ICP is to accelerate hazard and risk reduction. The ICP will help us to deliver change, which in turn will lead to improved performance and accelerated delivery.

Within the Sellafield Site ICP, there are 18 programmes of improvement. The Decommissioning Directorate ICP team are managing the realisation of all of the improvements but are particularly focussing on eight of the programmes which will give us the greatest benefit. These areas are:

- Disciplined Operations
- Commercial Operations
- Safety Cases and Engineering Substantiation
- Project Execution Improvement Programme
- Resource Utilisation (mobility)
- Maintenance Re-engineering
- Radiological Roll back
- Organisational Design.

Each Decommissioning Delivery area will own their own Performance Improvement Action Plans which will clearly identify the improvement opportunities that they are responsible for delivering. Scheduled activities will be prioritised so that effort is focussed on changes that will enable or give each area the greatest performance benefits.

Project Area Updates

Teams across the Decommissioning Directorate have continued to progress work on the portfolio, achieving a number of successes:

The Magnox First Generation Storage Pond Projectisation pilot has been completed and the final report has been submitted to the site projectisation team. The learning from the pilot has been used to help with developing the organisational layers under each programme in the new Decommissioning structure, so that the Directorate is in a strong position for when projectisation is rolled out across the site as a whole which is anticipated in the summer.

A Performance Plan Review was carried out by a team of international experts in January 2010. The group's objective was to review the Legacy Ponds and Silos (LP&S) critical path programmes for acceleration opportunities based on their experiences, and if applicable, to identify further opportunities and cost savings.

Following the recent planned engineering shut down of Thorp, 31 employees were seconded to the Decommissioning directorate to aid ongoing hazard reduction operations as part of the business-wide drive to redeploy personnel in order to be more effective and deliver more work for the same funding level (an initiative which is being named Six4Five as the plan is to deliver six years worth of work for the cost of five.)

The Legacy Ponds and Silos Maintenance Delivery Team continue with their excellent safety record and have achieved 7 ½ years without a Lost Time Accident. This is a major achievement for a team of 250 people, especially given the diverse nature of the work that the team undertake, delivering both scheduled and unscheduled maintenance across the whole of the LP&S area.

On 1st April 2010, the Sludge Packaging Plant 1 (SPP1) Buffer Project achieved 6 years, and almost 700,000 man-hours, without a recordable injury or reportable incident. The SPP1 Buffer Store will, once completed, provide modern shielded containment for the sludge to be retrieved from the Magnox First Generation Storage Pond.

The total volume of concrete poured in the building structure to date is 3339m³, or almost 550 mixer wagon loads, so the walls are now complete.

The project has also fixed 820 tonnes of reinforcing steel, almost all of which has had to be manually placed, as craneage on the construction site is severely constrained.

Pile Fuel Storage Pond

Export of Redundant Fuel Skips from the Pile Fuel Storage Pond - Following the successful export of the first skip, 16 skips have been removed from the pond, wrapped and disposed of suitably, making space for pond floor desludging operations to commence in the future. Achieving this milestone meets a commitment made to the Nuclear Installations Inspectorate.

The installation of the Control Electrical and Instrumentation (CE&I) container was installed onto the roof of the Local Sludge Treatment Plant (LSTP). This facility will provide modern treatment and containment capability for the sludge removed from the Pile Fuel Storage Pond. Successfully lifting the Flushwater Skid, Ventilation Plant Room Container and the CE&I Plant Room Container to the LSTP Storage 8m level roof meets a Nuclear Installations Inspectorate milestone.

Active commissioning trials for Local Effluent Treatment Plant (LETP) have been completed ahead of schedule and an application has been made to the Nuclear Installations Inspectorate for the Licence Instrument which will permit the plant to be handed over for operations. LETP will process and treat the water used in the retrieval process as well as pond water at the rate of 25m³ per day. The NII returned and approved this change at the end of March 2010.

Desludging operations, using water jet lancing technology, have been completed in six withdrawal bays in the Pile Fuel Storage Pond. The sludge is

moved from the bays into the main pond area, from where it will be collected and transferred into the sludge corral prior to treatment in the Local Sludge Treatment Plant and ultimate disposal. Desludging the bays is a key enabler to removing sludge from the facility. This was achieved on 26th April 2010. This was almost a month later than scheduled but delivery was impacted by extreme rain and freezing weather conditions.

Magnox First Generation Storage Pond

The Pond Purge unit, a system designed and built to purge the pond with a tightly controlled mixture of clean demineralised water and caustic soda, has been successfully constructed and tested. The purge will continuously replace contaminated pond liquor with clean liquor, driving the contaminated liquor out to the Site Ion Exchange Effluent Plant (SIXEP) (an existing water treatment plant on site) where it can be treated. Activity in the pond liquor is a significant source of dose uptake to the workforce and the dose needs to be reduced in order to ensure the uptake levels during retrieval operations are acceptable. The system will also reduce aerial discharges from the pond liquor so the purge will positively impact the site annual discharges.

Removal of suspended tools from the Magnox First Generation Storage Pond and Decanning Facility - The plant was set a target to remove at least 10 items from the North Pond wall up to end of March 2010, which they achieved by early January. In addition a number of redundant similar tools were removed from C Bay Skip Transfer (C ST Bay) late last year. All the items removed are redundant manual type long reach pond tools, the majority of which have been in the pond for more than 10 years. All the tools were individually retrieved and processed, wrapped in PVC layflat, size reduced and bagged for solid waste disposal as Low Level Waste (LLW).

Sludge Packing Plant1 – The Effluent Collection Vessel installation marks the start of real installation into the plant as opposed to construction activities. Build and installation activities are occurring in parallel to optimise the project programme. The project has also undertaken a rigorous readiness review in order to commence installation to ensure that all aspects relating to safety and quality are robust and in place.

The first isolation in the First Generation Magnox Storage Pond for several years has been successfully completed, with the isolation of the Magazine Transfer (MT) Bay weir box balance pipe. The isolation, which involved lowering the level of the pond temporarily, coring an access hole in the MT Bay internal floor and filling the line with grout, was completed successfully on 3 February 2010.

Magnox Swarf Storage Facility

Installation of the Compartment 8 Cavity Sump Pump - This enables sump liquors to be returned to primary containment, which presents a major hazard reduction in the Magnox Swarf Storage Facility, and overall, a major nuclear safety risk reduction. The achievement is part of a package of work being

carried out on the Compartments within the facilities First Extension, and is work which has been accelerated on the Life Cycle Baseline.

30 Beta in Air Monitors have been replaced in the plant, ensuring that effective monitoring for airborne activity within the Magnox Swarf Storage Facility continues and securing ongoing compliance with Regulation 19 of the Ionising Radiation Regulations 1999 (IRR 99) - ensuring that levels of ionising radiation in controlled and supervised areas are adequately monitored and working conditions kept under review. The new monitors replace the obsolete Harwell Instruments, for which spares were becoming increasingly difficult to source. Preparatory work prior to commencing the installation of the monitors involved the upgrading of the up stream electrical supply for the Beta in Air monitors. The task is an enabler for retrievals from the Magnox Swarf Storage Silo to commence.

A new Building Evacuation System has been installed in the Magnox Swarf Storage Facility which meets current standards and operational requirements, maintenance and safety. The system includes a number of speakers, Keep Out Warning Lights (KOWs) outside of the facility and Noisy Area Warning Lights (NAWLs) in the facility. Completion of the installation and commissioning of this Building Evacuation System is one of a number of improvements allowing retrieval operations from the facility to commence. In addition, the system will provide the following benefits;

- facilitates timely and safe evacuation of individuals in the event of an incident.
- secures compliance with mandatory site requirements for buildings containing fissile material.

Solid Waste Storage Silo

The Box Transfer Facility Project team achieved a major milestone in December by completing the final reinforced concrete pour for the facility's foundations to ground level. The construction phase, over the past two years, has seen the excavation of over 20,000 tonnes of spoil, 1500 tonnes of rebar and the pouring of around 8000 cubic metres of concrete.

Work has been completed on what is known as the Hill Removal Project, and there are significant visible changes to the landscape both at the Removal site and on the off site disposal area. The hill removal has created enough space for the construction of a future Comprehensive Import Export Facility and a new Box Encapsulation Plant Product Store.

The Solid Waste Storage Silo Foundation slab was completed in December. The achievement of this milestone is a significant step forward for the project in its aim to safely remove the historical waste from the building. The foundation is a heavily reinforced concrete slab capable of taking the loads that will be imposed by the construction of the Retrieval building structure and waste route associated plant and equipment. The slab also included all the

necessary future services and drainage for the building and over 1000 seismic anchors. In addition to supporting the Retrievals building, the foundation will also cater for the transfer of flasks during the waste retrieval from silo to storage facility.

Site Remediation and Decommissioning Projects

Removal of the remaining fissile material from the Prototype Fast Reactor (PFR) Fuel Fabrication facility and movement to an interim storage facility has been completed. This has also reduced the hazard and risk in the facility, in terms of both security and radiological concern, and allows the facility to be re-categorised from a category 1 to a category 3 facility reflecting the reduction in risk. This in itself is a major achievement as it will offer easier access and greater flexibility for future decommissioning operations within the facility.

The Primary Separation Plant (PSP) - Removal of the entire redundant inventory held in the top section of one of the process cells continues to plan. The material held within the cells ranges from radioactive vessels through to contaminated pipe work that had been used as part of the reprocessing process. A large proportion of the metal retrieved has now been treated through the site's wheelabrator - a facility used to mechanically remove the outer surface of contaminated steel to clean metal for recycling.

Six instrument bulges historically used in the PSP to extract process liquor for analysis in Sellafield's primary separation plant have been removed from the facility ahead of schedule. The Instrument bulges at key locations in the plant enabled samples to be extracted from the process lines. The bulges consist of a 2.5 metre long trough contained within a stainless steel liner which in turn sits within a mass concrete containment and is further shielded with lead brick and sheet. The key driver behind this project was to reduce the overall loading on the building's core, as each instrument bulge weighs an average of 17 tonnes.

The work in the Solid Waste Storage Cells to install the operations floor of a new engineered building which will allow waste characterisation and retrieval work to begin in a historic beta gamma waste store, has been completed. The original facility contains eight open-top, above ground cells. From the 1970s, the cells were identified as suitable containment for the storage of miscellaneous beta gamma (low and intermediate level) waste including items such as filters, pipework and scaffolding. The process of storing waste in this way continued through to 2000. The cells were deemed unsuitable for long term storage, so construction of the new engineered building with operations floor and electrical services (power, lighting, environmental monitoring and fire detection capability) will enable waste characterisation and retrieval operations to begin.

Windscale

As part of EURATOM compliance requirements on Decommissioning Planning, the Piles Decommissioning Team has submitted The Piles Article 37 submission on discharge authorisation to the Department of Energy and Climate Change (DECC). The document will be reviewed by key stakeholders prior to it being issued to European Commission Member States.

Pile 1 West Air Inlet Duct (WAID) Y Section Demolition – The Radiological Condition Report was produced, signed off and submitted for Performance Based Incentive (PBI) completion in December 2009. The PBI was achieved two months earlier than programmed. The completion of the PBI and the associated work is the precursor to the structural demolition of the WAID.

On the Piles project, Part III of the Criticality Transport Case was submitted to the Department of Transport (DfT) for United Kingdom Competent Authority approval. Acceptance of the criticality case will allow the Pile 1 fuel channel waste to be transported to its proposed resting point. This is one of the first "integrated" (i.e. plant/transport/repository) criticality safety cases to be presented to DfT/Radioactive Waste Management Directorate.

WAGR Decommissioning has achieved three significant performance milestones:

- The removal of the Lower Hemisphere steelwork has been completed.
- The removal of sufficient debris from the reactor vault floor to enable the final phase of "internal decommissioning" to commence
- Preparation work for Campaign 10 was completed and cutting of the outer ventilation membrane commenced.