

## **The Sellafield Plan - 12458**

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### **ABSTRACT**

The Sellafield Performance Plan represents the start of a new era for the Sellafield site. It is a key driver in the Nuclear Management Partners mission to make Sellafield safer, cleaner, more productive, more cost effective and a better neighbour. When published in summer 2011, the Sellafield Performance Plan set out exactly what work would be completed at Sellafield between 2010/11 and 2025/26, how all of the facilities on the site interact, and what new facilities would be needed in order to deliver the risk and hazard reduction mission. The plan is the first credible and underpinned lifetime plan for the Sellafield site - the most complex part of the UK's civil nuclear estate. Under the Sellafield Performance Plan there are projected to be more jobs longer creating opportunities for the site, its workforce and the economic stability of West Cumbria.

### **INTRODUCTION**

In August 2011, Sellafield site owners, the Nuclear Decommissioning Authority (NDA), site operators, Sellafield Ltd, and Sellafield Ltd's parent body organisation, Nuclear Management Partners (NMP), published a ground-breaking plan that sets out the long term future of the Sellafield site.

The Sellafield Performance Plan was compiled over the first two years of NMP's contract. It is the first credible and underpinned lifetime plan for the Sellafield site and details the forward programme of operations, construction projects and decommissioning.

The plan is a major milestone for the Sellafield site and the nuclear industry in general. NMP applied the combined experience of URS, AMEC and AREVA to producing the plan. They spent the first two years of their contract learning the site and identifying issues so that they could give the Nuclear Decommissioning Authority a true picture of its operations and plant closure dates.

By working much more efficiently and effectively than has historically been the norm at Sellafield the team will achieve true value for money to their customer, to the UK government and to the UK taxpayer.

The document represents the first fully underpinned plan for Sellafield, both technically and in terms of capability and it is against this plan that the NDA will judge the performance of NMP.

The Performance Plan also provides crucial information to the economic development of West Cumbria. Acceleration of the decommissioning programme at Sellafield means higher levels of employment than would otherwise have been the case. So, while the manpower profiles presented in the performance plan do indicate a long term decrease in workforce at Sellafield, this is a much more gradual reduction over a significantly longer time period than had originally been predicted in earlier plans.

Acceleration of the decommissioning plan also provides opportunities for the local supply chain and increased prospects of inward investment for West Cumbria.

## **OPERATING SELLAFIELD**

Although a very compact site for the range of activities contained within in, Sellafield is the largest industrial site in the UK. The early pioneering work on nuclear technology for both defence and electricity generation has left a significant legacy at the site: Windscale, Calder Hall, the Ponds and Silos, Reprocessing plants, a myriad of other handling and processing facilities and an array of nuclear materials all need to be safely managed, safely operated and safely decommissioned.

In order to build on the expertise already at the Sellafield site and maximise innovation, the NDA competed the ownership of Sellafield Ltd to bring in global decommissioning experts to accelerate the programme of work and support the drive for delivering value for money for the UK taxpayer. It was the single largest UK public sector contract of its time.

NMP, a consortium of URS, AMEC and AREVA, was awarded the contract and started working in November 2008. The first task was to spend the necessary time and energy gaining and in-depth knowledge of the challenges at Sellafield; a task which would take the first two years of the contract.

The contract in place between the NDA and NMP can run for a maximum period of seventeen years. At the end of every five years the contract has breakpoints for a formal review of progress. Provided performance has been satisfactory the NDA will renew the contract for a further five years.

The revised structure of having the NDA as owner of the site and its assets and liabilities, Sellafield Ltd as the operator of the site and NMP as owner of Sellafield Ltd means there are two separate but complementary contracts in place.

The first is between the NDA and NMP which puts NMP as the owner of Sellafield Ltd for the duration of the contract. The second contract is between the NDA and Sellafield Ltd and it sets out specific work which needs to be undertaken at the Sellafield site. This work specification links back to the NDA's strategy and business planning, ensuring there is a strong and auditable link between those priorities and activity at an operational level across the Sellafield site.

The NDA's strategic objectives are set by the Department of Energy and Climate Change, which are then reflected in their annually published Business Plan. From the Business Plan rigorous targets are set for the Sellafield site.

NMP appoints an executive team to lead Sellafield Ltd. They are then held accountable for the overall performance of the site.

As with any system of robust contract management, clear, specific targets are identified and agreed, against which successful performance can be judged. These targets would be included as longer-term milestones within each section of the document with detailed, in-year specific targets included as an appendix.

## **BUILDING A PLAN FOR SELLAFIELD**

One of the main drivers of the Sellafield Ltd competition was to improve performance at the site whilst maintaining overriding commitments to safety, security, environmental protection and value for money for the Government and taxpayers.

In order to judge the improvement in performance it was first necessary to establish what would have happened if there had not been a competition and the site had moved forward on the basis of historic performance levels.

Like all UK site licence companies, Sellafield Ltd is required to set out Lifetime Plans for the sites under its control. While an inherited plan was in place when NMP took ownership of Sellafield Ltd in November 2008, it was collectively agreed that the plan was not realistic and could not be delivered.

It had been built upon a significant number of key assumptions such as the availability of downstream plants for decommissioning, the rates at which waste can be retrieved and treated and estimates for the duration of construction of new plants on site.

Consideration was given to simply updating this plan but it was agreed that the best approach was to completely rebuild that plan, based on historic delivery levels and updated priorities. This is known as the Contract Baseline, as it provides a solid base against which a judgement of how much improvement is being made across the site.

The contract baseline was subjective to thorough assurance reviews by both the NDA and NMP.

NMP were then tasked with building a new plan that would capture what they believed could be delivered across the site by applying their experience innovation and leadership.

The result was a performance plan which was formally accepted by the NDA and made publicly available in summery 2011.

The following paper outlines the process used to create the performance plan for Sellafield and the associated challenges; the perceived and actual benefits of the resulting plan and the stakeholder engagement work which was carried out in order to successfully launch the plan.

## **DELIVERY STRATEGY – BUILDING THE PLAN**

In order to create the best possible, fully underpinned performance plan for the Sellafield site it was first necessary to understand what Sellafield was actually capable of delivering – this would become the contract baseline.

For example, if the Thermal Oxide Reprocessing Plant (Thorp) had consistently had a 600 tonnes (te) throughput then the contract baseline for that facility would be based on a throughput of 600te.

Similarly, if construction projects at Sellafield traditionally took seven years to complete, then the construction element of new facilities would have a contract baseline schedule of seven years.

The contract baseline sets out what would have been delivered at the Sellafield site in the next 17 years had the competition to run Sellafield Ltd never taken place.

In order to understand the proven performance of the site, and then to be able to quickly understand how this performance could best be improved, NMP introduced a Partner, Assess, Innovate and Sustain (PAIS) process.

In the first phase, PAIS teams were established under six broad focus areas with subject matter experts from NMP's parent companies and from Sellafield Ltd.

These teams were formed from about 60 individuals from URS, Areva and AMEC and key Sellafield Ltd personnel. This partnership ensured each PAIS team access to the best available tools and techniques from the parent companies and the knowledge and experience from Sellafield Ltd to develop the best approach.

The Assessment phase examined the procedures and policies that were in place and how they were implemented across the business. The assessment relied largely on interaction and engagement with the wider Sellafield Ltd workforce who are responsible for their implementation.

Involving Sellafield Ltd employees in this process was essential as they are the experts and best positioned to understand the challenges and issues in each area.

The Innovate and Sustain phases of the PAIS process enable recommendations to be developed of how improvements in performance can be made in each of the areas examined, and then how they could be embedded.

The output from the PAIS teams was fundamental in influencing the first phase of changes to be made by the NMP seconded by Sellafield Ltd Executive.

After almost two years of investigation, discussion and assessment, NMP had developed a clear contract baseline. They had also developed an underpinned performance plan for the Sellafield site which sets out how the site would deliver milestones sooner than would have happened if the site had continued to operate the way that it had historically.

## **THE PLAN STRUCTURE**

A detailed contract baseline and performance plan was built for every workstream undertaken at the Sellafield site, from clean-up work and commercial operations through to the delivery of functional support. The plan includes the following topic areas:

- Risk and Hazard Reduction
  - o Floc Storage Tanks
  - o First Generation Reprocessing Plants
  - o Pile Fuel Storage Pond
  - o First Generation Magnox Storage Pond
  - o Magnox Swarf Storage Silos
  - o Pile Fuel Cladding Silo
  - o Highly Active Liquor Workstream
  - o Plutonium Contaminated Material Treatment and Storage
  - o Windscale
- Spent Fuel Management
  - o Magnox Reprocessing
  - o Ongoing Receipt of Advanced Gas-cooled Reactor Fuel
  - o Thorp Reprocessing
  - o Wet Inlet Facility
- Decommissioning
- Nuclear Materials
  - o Overseas Plutonium Return
  - o Safe Storage of Plutonium
- Waste Management
  - o Effluent Management
  - o Intermediate Level Waste Treatment and Storage
  - o Low Level Waste and Sub Low Level Waste Treatment
- End States
  - o Land and Groundwater Remediation
- Infrastructure
- Functions
- Socio-economic

The Sellafield Performance Plan projects significant schedule acceleration in high-risk, high-hazard areas but is especially focused on Legacy Ponds and Silos.

The output of the research and assessment that went into building the plan was also built upon to construct a broader long term change plan for Sellafield Ltd – the Integrated Change Programme.

## **DELIVERING THE PLAN – THE INTEGRATED CHANGE PROGRAMME**

The Integrated Change Programme brings together all of the improvements that must be made across the Sellafield site and operations in order to deliver the accelerated delivery dates highlighted in the Sellafield performance plan.

The Integrated Change Programme was launched to drive the 18 focus areas that the PAIS reviews highlighted. The programme had considerable success with many of the initiatives becoming business as usual. As a result, in 2011 these focus areas were narrowed to seven:

- Nuclear Safety and Operations
- Organisation and Leadership
- Training
- Commercial
- Integrated Work Management
- Engineering
- Project Execution Improvement

One of the key priorities of the programme is to standardise the processes and structures across Sellafield so that the teams are all working in the same way to achieve the same things. It helps the site to meet the financial, safety and production targets that our customer and regulators require.

The change journey for Sellafield is not optional. To achieve our vision and become the workforce of choice for potential new missions we need to ensure we're using consistent operating systems and processes based on best industry practice. The programme framework is based on the industry proven model which aligns with Institute of Nuclear Power Operations (INPO) and World Association of Nuclear Operators (WANO) guidelines.

To roll out the programme across Sellafield a series of gap analysis of practices and processes are being carried out by individuals from Sellafield's various directorates and the Integrated Change Programme central team. The focus is on gathering information to establish an understanding of each directorate's progress across the focus areas.

The teams then produce a facility owned improvement plan showing the key activities required to deliver greatest facility benefit. A set of metrics will measure implementation progress and benefits.

The changes are being introduced with diligence and urgency, but always safely.

## **CHALLENGES**

NMP invested a number of years in developing its bid for the Sellafield Ltd contract and outlining the improvements that we could implement.

However, it is only when you hit the ground that you can really understand and absorb the full extent of the issues, of the operational concerns and of the condition of the site's infrastructure.

The complexity of this task resulted in the process taking longer than NMP had originally anticipated, but it was essential that the time was taken to get it right first time.

## **STAKEHOLDER ENGAGEMENT AND COMMUNICATION**

Sellafield Ltd made a commitment to stakeholders that, when the Performance Plan had been finalised, a public version would be made available to provide a clear and transparent plan against which progress reports would be made available.

The Sellafield Performance Plan would be the first plan for Sellafield that had been published to stakeholders since 2007. During this period it was difficult to communicate progress with stakeholders as they had no baseline data against which to judge performance.

During the construction of the performance plan data a stakeholder editorial group was convened to provide an opportunity for stakeholders to influence the level of detail that would be provided in the final public document.

The editorial group included local authority leaders and officers along with representatives from the local Member of Parliament (MP) office, the West Cumbria Sites Stakeholder Group and the trade unions.

Once published, the Sellafield Performance Plan provided local stakeholders with a great deal of detail about the plans across the Sellafield site, target dates, new facilities that would be required and general background information on the site.

The plan also provided crucial information to the economic development of West Cumbria. Acceleration of the decommissioning programme at Sellafield means higher levels of employment than would otherwise have been the case. So, while the manpower profiles presented in the performance plan indicated a long term decrease in workforce at Sellafield, this is a much more gradual reduction over a significantly longer time period than had originally been predicted in earlier plans.

Acceleration of the decommissioning plan also provides opportunities for the local supply chain and increased prospects of inward investment for West Cumbria.

## **BENEFITS**

From an external perspective, the Sellafield Performance Plan provides stakeholders with a road map of activities at Sellafield from now until the end of the 2025/26 financial year. They are able to look at what we said we would do and measure our performance against that plan.

Internally the plan provides our workforce with a clear direction of progress for the Sellafield site. They can see what we need to achieve together, and by when.

We have to recognise that even a plan of this detail may have to change due to new circumstances, whether that be as a result of changes in policy, resource allocation or other events that could impinge on the nuclear industry. However, what we have right now is a credible plan for the safe and cost-effective continued operation of the Sellafield site that is underpinned both technically and in terms of capability, and one that gives us all the best chance of success.

## **CONCLUSION**

The Sellafield Ltd performance plan sets out how NMP will apply their global experience to improve operations, generate efficiencies and deliver detailed programmes of work with the aim of accelerating decommissioning and providing value for money. Successful delivery of the plan will also ensure the site continues to effectively operate critical national infrastructure that supports the UK's energy programme, and maintains the safe and secure management and storage of nuclear materials.

The NDA and UK Government have demonstrated their confidence in NMP and Sellafield Ltd's capability to deliver this plan by providing the highest-ever Annual Site Funding Limit for the site in 2011/12.

The Sellafield Performance Plan also creates both the foundation and the environment for a vibrant West Cumbrian economy through significant opportunities for the local supply chain and real prospects for further inward investment. By working flexibly and accelerating the decommissioning programme, the plan provides the opportunity for significant retraining to adapt to future challenges on the site and for other potential new nuclear missions in West Cumbria.