

Oxide Fuels Preferred Option

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Summary and Recommendation:

This report provides a summary of the Oxides fuel Preferred Options paper published in June 2012. The paper details the Nuclear Decommissioning Authorities (NDA) preferred option of dealing with oxide fuels which follows their credible options paper in November 2011.

Recommendation:

That the contents of the report are noted and that consideration is given to the future impacts of the closure of THORP.

1. Background

On the 21st November 2011 the NDA announced their Strategy for the management of oxide fuels with the publication of a credible options paper.

The paper investigated whether the current strategy for managing oxide fuels, compared to other credible alternatives, remains the most cost-effective option. As a result the NDA analysed 3 different options for managing oxide fuels:

Option 1: Complete the reprocessing contracts in THORP within the current strategy for oxide fuels.

Option 2: Reprocess less than the contracted amount of spent fuel in THORP

Option 3: Reprocess more than the contracted amount of spent fuel in THORP.

Based on the results from the credible options study the NDA have concluded that the delivery of the current strategy - to reprocess the contracted amount of spent fuel in THORP – remained the most viable and cost –effective option and have declared this to be their preferred option.

The implementation of option 1, reprocessing current contracts, will mean the closure of THORP in 2018.

2. Management of Spent Fuel Post THORP closure.

After the closure of THORP, the NDAs' plans for the remaining AGR spent fuel are to place it into interim storage pending packaging for disposal to a GDF, which could potentially start in 2075.

EDF Energy has announced that they intend to extend the operating life time of 7 of their existing stations by an average of 7 years resulting in an increase in the levels of AGR fuel for the NDA to manage. However this potential scenario was taken into consideration in the credible options assessment and the NDA are confident that this will not impact the preferred option as they will have enough capacity on site to store the increased amount of spent fuel.

*"If the reprocessing contracts are completed then we will have sufficient capacity to interim store in the THORP pond all the spent fuel coming from the AGR power stations if EDF Energy extends the AGR fleet by an average of seven years. We will also have sufficient capacity to interim store AGR spent fuel if EDF Energy were to further extend the life extensions of their fleet by a further few more years beyond this seven year declaration. This means we are confident we will have sufficient capacity to store all the AGR spent fuel in a single storage facility even if EDF Energy achieves lifetime extensions beyond their current best estimate."*¹

In the Credible Options paper it discussed the possible additional expense incurred for new assets such as Highly Active Storage Tanks (HASTs), this could possibly mean a large expenditure for the project. In the Preferred Options paper they state that they are confident that the HASTs are suitable to complete the remaining reprocessing programmes, therefore replacement HASTs are not needed.

It also states that the availability of evaporators to support reprocessing operations in THORP is limited, until a new evaporator can be built or the capability of the current evaporators is improved. Therefore if the schedule for the new Evaporator D slips further then it is possible that they may have reprocessed less AGR spent fuel by 2018 than currently intended.

In our consultation response to the Credible Options paper we asked if the possibility of reprocessing MOD waste had been given consideration, NDA stated that previous studies have concluded that THORP is not suitable for processing fuels from the MOD estate.

The NDA does not believe that there is a case for declaring the spent fuel as waste as the site of the GDF and timescales for disposal of spent fuel are uncertain.

3. THORP Socio- Economic Closure Impacts

¹ Oxide Fuels Preferred Options 2011 Pg11

THORP has been operational for 20 years and employs almost 800 people, the closure of such a key facility will obviously have a large impact. The closure will see a reduction in the numbers employed on the plant once operations cease with only a fraction of the staff remaining during clean out stage prior to decommissioning.

The Preferred Options papers gives no indication as to the level of jobs that will be lost due to the closure, the number that will be redeployed and how or where they will be redeployed to.

In the response to the Credible Options paper the Council raised the issue that to stop reprocessing and to store the remainder of the fuel has a negative impact on the local economy. The NDA have noted our concerns and stated that the current Sellafield Performance Plan takes account of THORP closure in 2018 and such a scenario has been used to inform the socio-economic assessment and The West Cumbria Economic Blueprint. The NDA have stated that they will continue to actively engage with key partners including Copeland Borough Council in the development and delivery of the initiatives that flow from that work.

4. Way Forward

Significant employment levels are dependent on THORP and its closure, whenever it happens, will have major socio-economic impacts for the area. However the impacts of the closure could be mitigated against if it was timed to coincide with the introduction of new facilities and workloads within Sellafield Ltd and or the development of the new nuclear generator or a potential new MOX facility.

5. List of Appendices –

Appendix A – Executive Summary :Oxide Fuels Preferred Options June 2012.

6. Consultees

Appendix A – Executive Summary: - Oxide Fuels Preferred Option June 2012

For Full document click on the link below:

<http://www.nda.gov.uk/documents/upload/Oxide-Fuels-Preferred-Options-June-2012.pdf>

Executive Summary

Our Strategic Position on Oxide Fuels

After the NDA was formed it inherited a range of contracts covering reprocessing and storage of oxide spent fuels in the THORP facilities.

In November 2011, with the publication of our Credible Options paper, we set out our options for oxide fuels and our assessment of them against a number of criteria. Our analysis showed that the amount of spent fuel that should be reprocessed in THORP on economic grounds is comparable to the amount that is contracted to be reprocessed.

Based on this we concluded that the delivery of the current strategy – to reprocess the contracted amount of spent fuel in THORP – remained the most viable and cost-effective option and called this our strategic position.

Confirmation of this strategic position as our Preferred Option for oxide fuels depended on meeting two key conditions.

a. Securing an agreed means for the interim storage of the remaining AGR spent fuel, and any future arising's

b. Demonstrating that the reprocessing contracts can be completed without the replacement-HASTs²

Confirmation of our Strategic Position

Since we published our strategic position we have continued with our work to secure these two conditions (see Section 3). We have considered new information on the performance of our existing and planned-for assets to support reprocessing (see Section 4), and also new information from EDF Energy on its plans to extend the lifetimes of its AGR power stations (see Section 5). We have also considered the stakeholder responses we received on our Credible Options paper (see Section 6).

After considering and assessing all of this information we have now confirmed our strategic position as our Preferred Option for oxide fuels, which is that:

² The HASTs are Highly Active Storage Tanks used to manage some of the liquors coming from reprocessing operations. There is an existing fleet of HASTs. Sellafield Ltd have been running a project to determine whether the existing fleet has sufficient capacity to complete the reprocessing programmes or whether replacement-HASTs are required, see Section 3 for further details.

- Completing the reprocessing contracts in THORP remains a viable and cost-effective strategy and,[2]

[1] The HASTs are Highly Active Storage Tanks used to manage some of the liquors coming from reprocessing operations. There is an existing fleet of HASTs. Sellafield Ltd have been running a project to determine whether the existing fleet has sufficient capacity to complete the reprocessing programmes or whether replacement-HASTs are required, see Section 3 for further details.

- We plan to place the remaining AGR fuel, including any future arisings, into interim storage pending a decision to dispose to a GDF.

There are, however, a number of performance risks that could impact on the delivery of the strategy. In some scenarios operational difficulties could result in the reprocessing of less than the currently planned amount of spent fuel by late 2018, the date by when reprocessing in THORP is expected to be completed. We believe, therefore, we should continue to examine alternative options so that we can manage these risks to the delivery of our strategy.

The Management of Oxide Fuel Beyond the Closure of THORP in 2018

After the closure of THORP, our plans for the remaining AGR spent fuel are to interim store it pending packaging for disposal in a GDF, which is expected to start in 2075. The NDA is still many years from making final decisions on the design of the disposal concept and the facility in which the spent fuel would be emplaced (ie the GDF).

We will continue, therefore, our work with Sellafield Ltd and RWMD to ensure we are able to manage our Oxide fuels through to disposal.

We expect to provide periodic updates on our progress with the interim storage and disposal of AGR spent fuel including any new strategic decisions, if any, that may arise.

In addition, we will review the progress and health of our strategy for oxide fuels on an annual basis.