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QUINQUENNIAL REVIEW OF DRDL'S STRATEGY FOR NUCLEAR DECOMMISSIONING ON THE LICENSED SITE AT DEVONPORT, PLYMOUTH

SUMMARY

The Office for Nuclear Regulation (ONR), an agency of the Health and Safety Executive (HSE), has produced the second Quinquennial Review (QQR) of the strategy of Devonport Royal Dockyard Limited (DRDL) for decommissioning on the licensed nuclear site in Plymouth. Our review was completed in consultation with the Environment Agency (EA) and Defence Nuclear Safety Regulator (DNSR).

Nuclear Liabilities at Devonport

The Devonport shipyard has contributed to the upkeep and basing of nuclear submarines since the 1970s. During that time, work at the site has included maintenance, refitting, refuelling and defueling of two types of nuclear submarines; the hunter-killer submarines or Ship Submersible Nuclear (SSN), and; the 4 Vanguard class submarines or Ship Submersible Ballistic Nuclear (SSBN) that are designed to carry Trident missiles.

Nuclear liabilities result from these activities. In addition to removing used submarine fuel and transferring it for transport to Sellafield, DRDL handles a range of solid and liquid radioactive matter that includes irradiated and contaminated submarine primary circuit components and irradiated coolant. Secondary radioactive wastes arise from the processes to store, treat and dispose of these materials.

The bulk of radioactive material found at Devonport is low activity (LLW, VLLW or exempt) with a moderate volume of ILW. The ILW mainly consists of used ion exchange resins from primary circuit decontamination processes and a small number of activated submarine reactor components.

Strategic Background

The requirement for a regulatory review of the decommissioning strategy of each UK nuclear operator was introduced in a HM Government policy statement (Cm2919) in 1995. Cm2919 reflected the outcome of the 1994 Nuclear Policy Review. HSE wrote to all the UK licensees in 1996, requesting decommissioning strategies for the purpose of carrying out the QQRs and outlined its approach in Guidance to Inspectors on Decommissioning on Licensed Nuclear Sites in 2001. The first review of DRDL's strategy for this purpose was published on the HSE website in 2004.

In completing this report, we have considered DRDL's response to the recommendations of the 2004 QQR and sought evidence that DRDL has kept its decommissioning strategy up-to-date in the intervening time. In order to achieve this, DRDL's strategy needed to reflect several significant changes, to

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both external circumstances and the situation on-site, that have occurred since 2004.

In terms of defence policy, DRDL's strategy is by necessity dependent on the UK submarine programme. In 2004, DRDL had to base its strategy on the 1998 Strategic Defence Review. The situation has since been updated by a number of government White Papers, most significantly: "Delivering Security in a Changing World" (Cm6041-1), the "Defence Industrial Strategy" (Cm2697), "The Future of the UK's Nuclear Deterrent" (Cm6994), and; "Securing Britain in an Age of Uncertainty: The Strategic Defence and Security Review" (Cm7948).

Creation of the Nuclear Decommissioning Authority (NDA) has led to a number of developments in UK policy and good practice, including revision of the sections of Cm2919 that deal with decommissioning. In 2005, the HSE published guidance on the criteria for de-licensing of nuclear sites, which needs to be reflected in the site's assumed decommissioning end-point. HM Government has progressed its Managing Radioactive Waste Safely (MRWS) initiative, with revised expectations for the management of solid Low and Very Low Level Wastes (LLW and VLLW) and decommissioning. Expectations for the management of higher activity radioactive wastes have also changed, to take account of recommendations made by the Committee on Radioactive Waste Management (CoRWM) in 2006, resulting in new joint guidance from the HSE, EA and Scottish Environment Protection Agency (SEPA). Also in 2006, the HSE revised its Safety Assessment Principles (SAPs), including the introduction of new principles for decommissioning, the management of radioactive waste and management of radioactively contaminated land.

Some significant changes on the Devonport licensed site have occurred since 2004, reflecting several worthwhile improvements:

- The redundant pond for storing used submarine reactor cores in the Submarine Refit Complex (SRC) has undergone Post Operational Clean Out (POCO).
- A large legacy of radioactive wastes that was previously stored in the NO51 facility has been disposed of.
- DRDL has dispatched two large consignments of depleted uranium for recycling using a trans-frontier shipment authorised by the EA.
- DRDL has ceased the practice of bulk storing used ion exchange resins in Modified Magnox Flasks (MMFs) and Resin Catch Tanks (RCTs).
- Many of the existing facilities have been extensively modified and new plants have been constructed as part of the D154 project.
- As part of the Future Nuclear Facilities (FNF) project, the SRC is being reconfigured to deliver Defuel De-equip and Lay Up (DDLUP) of submarines that have left operational service.
- Decommissioning of the Multi-stage Oxidation and Decontamination by Ion Exchange (MODIX) facility has commenced.

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- The permitted radioactive waste disposal routes have been broadened, such that DRDL now has a wider range of opportunities for radioactive waste transfer and disposal off-site.

Relationship with DRDL's Integrated Waste Strategy

A nuclear operator's strategy for decommissioning has a close relationship with its strategy for the management of radioactive wastes.

The 2004 QQR contained a regulatory assessment of both DRDL's strategy for nuclear decommissioning and DRDL's strategy for the management of radioactive wastes. DRDL has recently strengthened its position by developing an Integrated Waste Strategy (IWS) to the template developed by the NDA, in order to replicate UK good practice and achieve better consistency with regulatory guidance. The ONR has assessed DRDL's IWS, in consultation with EA and DNSR, and reported the findings to DRDL. The regulators have acknowledged that implementation of the IWS is now the most fitting vehicle for DRDL to use in order to further improve its waste management performance. Therefore in this QQR the regulators have sought to avoid duplication of the findings in their assessment of DRDL's IWS and have targeted the recommendations on issues of nuclear decommissioning only. DRDL will need to ensure that its work to strengthen and implement its IWS is closely coordinated with its response to this review.

Appropriateness of DRDL's Strategy

DRDL produced a Quinquennial Review Action Plan and Strategy Review Plan in response to the findings of the 2004 QQR, with a goal of addressing all the regulatory recommendations prior to making its submission to inform this review. The regulators have considered the adequacy of DRDL's corrective actions and supplemented the data in DRDL's submission with other intelligence, such as the findings of regular site inspection activities.

The nature of the radiological inventory at Devonport is such that deferral of plant decommissioning generally brings no significant benefit in terms of safety nor environmental protection; as such, the regulators support a policy of DRDL carrying out decommissioning promptly when plant reaches the end of its operational life.

The regulators have judged that DRDL's decommissioning strategy is appropriate, so far as it has been defined. Outline Decommissioning Plans are in place for all facilities with a significant radiological inventory, although the ODPs will need to be supplemented with more detailed plans when the time to carry out decommissioning nears. The current level of detail in DRDL's cross-site decommissioning plan does not robustly demonstrate a fully optimised approach taking into account the full range of relevant factors listed in government policy – DRDL will need to undertake further work in order to achieve consistency with established good practice in this aspect.

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Since 2004 DRDL has taken significant steps to improve its performance. This has included delivery of several small-to-medium-scale decommissioning projects, disposal of a significant volume of legacy radioactive wastes and development of a more extensive set of decommissioning plans.

Finance for Decommissioning

Financial liability for the right and proper costs of nuclear decommissioning and disposals of radioactive wastes at DRDL rests with the MoD. MoD published its first programme-wide strategy for management of its nuclear liabilities in 2011. The regulators will advise the MoD as it continues the work to take its strategy to a state of greater maturity. As this work progresses DRDL should demonstrate that its LC35 compliance arrangements are aligned with the MoD's developing approach.

The regulators are aware that this might require DRDL to reformat or further supplement the data that was submitted for this review. The regulators will therefore encourage DRDL to liaise closely with the MoD to ensure all decommissioning on the licensed site at Devonport is appropriately recognised in the MoD's strategy, plans and provisions.

Future Regulatory Reviews

In order to avoid the imposition of an unnecessary regulatory burden, UK government policy supports completion of QQRs except where equivalent arrangements are in place for other purposes. The ONR has concluded that in the case of Devonport, the QQR process has provided a useful focus for both the regulators and the operator to ensure that DRDL's decommissioning strategy remains fit-for-purpose. The regulators will play a proactive role in MoD's development of its national level strategy and will take account of developments with that initiative in the decision on the timing and format of future reviews.

Open Government

In order to obtain the Assessment Report that has informed the above statement, contact ONR@hse.gsi.gov.uk quoting the following:

Summary Statement: TRIM Record 2011/0122197

Assessment Report: TRIM Record 2012/0026824

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