

# Nuclear Free Local Authorities **RADIOACTIVE WASTE POLICY**

## **Briefing No. 38 – MOD Nuclear Submarine Dismantling**

### **Prepared for NFLA member authorities, April 2013 Nuclear Submarine Dismantling Consultation – MOD Response**

#### **1. Introduction to Briefing**

The Ministry of Defence (MOD) has published its response to the Submarine Dismantling Project (SDP) Consultation. This is available from the SDP consultation page on the [www.gov.uk](https://www.gov.uk/government/consultations/consultation-on-the-submarine-dismantling-project) web site: <https://www.gov.uk/government/consultations/consultation-on-the-submarine-dismantling-project>.

This briefing has been developed by the NFLA Policy Advisor to provide member authorities with the key decisions made by the MOD following the public consultation, and the NFLA's initial response to it. The NFLA have directly discussed this matter with officers from Fife Council, a NFLA member council and the location of the Rosyth facility, who are closely affected by the MOD's decision-making process. The NFLA has been closely involved in all aspects of the SDP consultation over the past decade. The NFLA Secretary is a member of the SDP Advisory Group and ongoing sub-groups considering future storage options and other environmental and waste management matters.

The NFLA's response to the original MOD public consultation can be found at: [http://www.nuclearpolicy.info/docs/radwaste/NFLA\\_RWB\\_No\\_31\\_SDP.pdf](http://www.nuclearpolicy.info/docs/radwaste/NFLA_RWB_No_31_SDP.pdf).

#### **2. RPV Removal and Storage is the chosen option**

The MOD has decided that its approach to Nuclear Submarine Decommissioning will be to remove and store the Reactor Pressure Vessels (RPV) intact prior to disposal in a theoretical Geological Disposal Facility. It says the arguments for this option have, on balance, been supported by the responses to the consultation.

The NFLA's submission to the Submarine Dismantling Project (SDP) consultation argued in favour of the Reactor Compartment Separation Option, because, based on environmental principles, any plan which involves diluting and dispersing radioactive waste should be rejected in favour of a policy of concentration and containment.

However, the option of cutting up the RPV and packaging the waste now has been rejected and this is to be welcomed. The RPV removal and storage option will still require the 50 – 80 tonne pressure vessel to be cut up into smaller pieces for packaging and disposal eventually, but waiting allows for some of the radioactivity to decay before size reduction begins.

#### **3. As Low As Reasonably Achievable (ALARA)?**

The NFLA argued in its submission to the SDP Consultation that, although the Strategic Environmental Assessment (SEA) claimed that both worker doses and planned discharges are predicted to remain within currently permitted limits for the RPV Removal option, it failed to make a comparison with the RC removal option or argue that it meets the ALARA principle. The fact that discharges of radioactivity into the environment are expected to remain within currently permitted limits is beside the point. Applying the environmental principles outlined in the Government's Statutory Guidance to the Environment Agency would suggest that the Best Available Technique (and applying the precautionary principle) would be the technique which involves least discharges into the environment.

The MOD does not accept this argument believing that ‘compliance with limits’ does encompass a full commitment to the ‘ALARP’ (As Low As Reasonably Practicable) or ‘ALARA’ regulatory requirements. This is because “*compliance with statutory dose and discharge limits would never be sufficient ... There are legal requirements to keep risks ALARP and exposures As Low As Reasonably Achievable (ALARA).*”

This debate hinges on what is considered to be “reasonably achievable”, and how much cost is taken into account. NFLA’s view is that in most circumstances it is reasonable to expect discharges of radioactivity into the environment to be kept as low as technically possible.

But this discussion was taking place with very little information on estimated doses and discharges being made available. It was possible to find, buried in the Appendices to the environment report (which was not available on the website) estimated dose to workers for the different options. And a summary of current information on radiological doses and discharges has now been made available as an Annex to the Strategic Environment Assessment (SEA) Post Adoption Report.<sup>1</sup>

	Environmental Report Appendix A Part 1.	SEA Post Adoption Report. *
RC Separation	0.07mSv to 0.12mSv/yr	0.18mSv/yr
RPV Removal & Storage	0.47mSv to 0.85mSv/yr	0.94mSv/yr
RPV size reduction	0.5mSv to 0.9mSv/yr	1mSv/yr

- These estimates taken into account more operations.

These numbers compare with the radiological dose limits to members of the public of 1mSv per year with dose from any new source not to exceed 0.3mSv. The legal radiation dose set for nuclear workers is 20mSv per year.

The SEA Post Adoption Report also gives information on discharges of radioactivity from a postulated dismantling process. The volumes and radionuclide content of discharged liquids were modelled using historical sampling and analysis data. The transport pathways included ingestion of fish, molluscs, crustaceans, inhalation of sea spray, external gamma and external beta radiation from activity in beach sediments, external exposure to gamma radiation and beta radiation in fishing equipment.

The ‘critical group’ at Rosyth (i.e. those members of the public likely to receive the maximum dose) was assessed as people who consumed locally-harvested seafood and were exposed to sediments and sea spray. A specialised software package was used to calculate the radiation doses to individuals in the critical group. The calculations indicated that most significant radionuclide was Carbon-14 and the pathway of greatest significance was the consumption of locally-caught fish. The calculated total radiation dose from the discharged liquids to a member of the critical group was 0.000046 micro Sieverts. (A micro Sievert is a one thousandth of a millisievert).

A similar exercise was carried out for gaseous emissions and the radiation dose to members of the critical group from gaseous discharges was assessed at 0.023 micro Sieverts per year. The most significant radionuclide was Carbon-14 and the pathway of greatest significance was the consumption of grain and milk products from the local area. The MoD says these doses are sufficiently low to be of no regulatory concern.

Obviously these very low numbers have been generated by a computer programme and are subject to huge uncertainty. It would probably have been sufficient to say that critical group doses for liquid and gaseous discharges are expected to be less than 1 micro Sievert. MoD should list the radionuclides which could be discharged into the environment, and produce an inventory of waste. It is not immediately clear why carbon-14 should be the most significant radionuclide. Carbon-14 discharges are usually associated with graphite moderated reactors rather than PWRs which

<sup>1</sup> See [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/157991/20130315-SDP\\_SEA\\_PAR\\_V1\\_0\\_updated-U.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/157991/20130315-SDP_SEA_PAR_V1_0_updated-U.pdf)

power submarines. Cobalt-60 would be another radionuclide to watch out for. NFLA have recommended to Fife Council that it should seek SEPA's view on the accuracy of this computer modelling exercise.

Significantly the MoD says "*When more detailed information on environmental discharges is available, it should be made publicly available in a timely manner. This should include summary information that can be readily understood.*"

Whilst this is a welcome development, this type of information should have been available before the original consultation.

#### **4. New Radioactive Discharge Authorisations**

MOD says applications will be made later in 2013 to amend radioactive waste disposal and discharge authorisations for Rosyth Dockyard and for approval under the Environmental Impact Assessment for Decommissioning Regulations (EIADR). A decision on whether to proceed with the opportunity for the early removal of LLW will be taken prior to the formal EIADR application and would be reflected in that application. This will be made available for public comment by Office for Nuclear Regulation (ONR).

SEPA has indicated that a changed Authorisation under RSA-93 will be required to allow dismantling activities to proceed at Rosyth. The site licensee may need to apply for an increase in the current gaseous and liquid effluent discharge limits as part of the changed Authorisation. This will be subject to statutory consultation. Further, detailed, information will be made public as part of the process of seeking regulatory approval for dismantling to take place.

#### **5. Regulatory Control.**

If the RPV Removal option is to go-ahead, NFLA believe that Fife and Plymouth Councils should press for extremely tight regulatory control so that discharges are indeed kept as low as possible and certainly remain well below currently permitted limits, particularly as Rosyth Dockyard is to be used for the demonstration of initial dismantling activities.

The MOD says the demonstration should "*confirm the rigorous safety and security procedures which will be followed in the design and operation of the dismantling facilities and processes, and validate radiological dose and discharge projections.*"

#### **6. The search for an ILW Storage Site**

No Intermediate Level Waste (ILW) will be removed from any submarine until an ILW storage solution is agreed and this will necessitate a further consultative assessment to shortlist and select a suitable site before applying for the necessary planning approvals. Even the demonstration project at Rosyth will not be able to go ahead without an ILW storage solution. This means that Rosyth and Devonport will not become ILW storage sites 'by default'. However, it doesn't mean that Rosyth and Devonport have been ruled out as potential sites.

However, the opportunity for the early removal of Low Level Waste (LLW) will be explored.

The Ministry of Defence (MOD) has previously proposed that the Intermediate Level Waste (ILW) storage site selection process should start by narrowing the range of options to a particular type of site, i.e. by deciding whether Nuclear Decommissioning Authority (NDA) or MOD and industry sites should be considered further, and discounting the other types.

However, based on the findings of the public consultation, alongside recent legal advice, it has been decided that the process of selecting a specific site for the interim storage of ILW should consider all UK nuclear licensed and authorised sites that might be suitable. This will therefore include MOD sites, industry sites and NDA sites on an equal basis. The MOD will carry out further public consultation as part of this process.

The Project will now undertake a comparison of specific candidate ILW storage sites, initially by preparing a provisional shortlist.

## **7. Other Issues.**

MOD says the decommissioned submarines could be transported to other sites safely, but the costs and risks involved make it less preferable than dismantling in situ.

In line with CoRWM's recommendations and Government policy SDP's ILW Storage facility will be designed for a 100 year life, so the SDP is not dependent on a GDF being available by 2040.

MOD notes comments made about radioactive contamination found at Dalgety Bay, and the impact this may have had on public confidence in the SDP. It says the situation at Dalgety Bay, however, is wholly unrelated to activities at Rosyth Dockyard, and SDP activities could not lead to a similar situation arising elsewhere because all radioactive wastes would be managed in line with modern standards or care.

## **8. Conclusions**

The difference in doses to the workforce between the RC Separation and RPV Removal and Storage options (0.18mSv vs 0.94mSv) shows why it was right for the NFLA to press for the RC Separation option.

Figures now available, which relate to discharges of radionuclides into the environment from RPV Removal and Storage, appear to be very low, but more information should still be provided, as these numbers are derived from computer models which are subject to wide uncertainty.

The commitment not to remove any ILW from submarines until an ILW storage site is available is welcome. Given the past experiences of searches for nuclear waste storage sites, finding a site is likely to take some time. Questions remain over exactly how the MOD will go about such a search, for example, whether voluntarism will be a requirement and whether there will be any community benefit available.

## **Annex – Public Statement by Fife Council on the MOD Consultation**

Fife Council, Tuesday, 26th March 2013

For immediate release

### **Rosyth submarine dismantling**

Following Friday's Ministerial statement from Philip Dunne MP Minister for Defence Equipment, Support and Technology on submarine dismantling, Council Leader Alex Rowley said: "Once we've had an opportunity to fully assess the detail within the MOD response documents we will be in a better position to understand the impact these developments may have for Rosyth and the wider Fife community."

"However from initial reading, the prioritisation being given to clearing the seven submarines at Rosyth is to be welcomed as is MOD's acceptance that greater clarity and detail on environmental discharges should be made publicly available in a timely manner and include summary information that is easily understood"

Only those submarines at Rosyth will be dismantled at Rosyth, the ten currently at Devonport will be dismantled there as part of the dual site strategy.

Cllr. Rowley continued: "We have waited many years for a solution to the submarines berthed at Rosyth and this announcement takes another step towards what I am sure we all wish to see, the removal of this nuclear legacy.

“No decision to commence dismantling will be made until a solution to the storage of the Intermediate Level Waste is agreed and further consultation has taken place on the most appropriate location. This will take another year at least so a measured response at this stage is the most obvious course of action.

“What we have said is that the waste should not be stored in Fife and that tight regulatory controls will be required on the dismantling process, I would also want the reassurance that the principle regulators, the Office for Nuclear Regulation, SEPA, Health & Safety Executive and the Defence Nuclear Safety Regulator are satisfied with the proposals.

“I am advised there will be an opportunity for further briefing and to raise issues with MOD at a proposed Rosyth Local Liaison Committee on 22nd April. A Submarine Dismantling Advisory Group meeting is also proposed in May or June, Fife Council will be represented. We must use the intervening time to take stock of the proposal and issues specific to Rosyth which we may wish to raise not least that there must be continuing public communication on the proposals.

“It is my intention to have a report on these developments brought to the Executive at the earliest opportunity.”

ENDS