

LANCASTER  
UNIVERSITY



**Project ISOLUS**  
Consultation on Outline Proposals  
(CIOP)

**Final Report**

Report to the MoD  
CSEC, IEPPP, Lancaster University  
April, 2004

The CSEC Consultation Team would like to thank everyone who participated in this consultation.

**Lancaster University Disclaimer Statement**

- *The purpose of the report is in part to summarise the views of those people potentially affected by Project ISOLUS.*
- *The views that are reported are those of the individuals and groups concerned, not necessarily those of the University.*
- *The University draws on those views in terms of the objectives of the report it has been asked to produce.*

*If we need to cite specific comment we do so in terms that make clear we are expressing the views of other people. In any event the report is commissioned by MOD and its terms of reference have been agreed with the Consultation Steering Group.*

# Contents

<b>Executive Summary</b> .....	<b>6</b>
<b>1 Recommendations</b> .....	<b>9</b>
<b>2 Introduction</b> .....	<b>16</b>
2.1 Next Steps .....	17
<b>3 Summary of this Report</b> .....	<b>18</b>
3.1 Demonstrability and Accessibility .....	18
3.2 Observations on the CIOP .....	18
3.2.1 <i>Strategic and deliberative action</i> .....	18
3.2.2 <i>Focus of consultation: do we start from here?</i> .....	19
<b>4 The Issues</b> .....	<b>20</b>
4.1 The national radioactive waste management strategy .....	20
4.1.1 <i>Integration of Project ISOLUS with national radioactive waste management strategy</i> .....	21
4.1.2 <i>Interim storage</i> .....	22
4.1.3 <i>Attracting further waste</i> .....	23
4.1.4 <i>Wider policy context</i> .....	23
4.2 Social and Environmental Considerations .....	24
4.2.1 <i>Adverse effects and Compensation</i> .....	25
4.2.2 <i>Health</i> .....	26
4.2.3 <i>Environmental impact</i> .....	26
4.2.4 <i>Trust and Relationships: Do you think we don't matter?</i> .....	27
4.2.5 <i>Justification</i> .....	29
4.3 Ethical issues.....	30
4.3.1 <i>The right to live without fear</i> .....	30
4.3.2 <i>The right to be heard</i> .....	30
4.3.3 <i>The right to live without (additional and imposed) risk</i> .....	30
4.3.4 <i>Community consent and the right to say no</i> .....	31
4.3.5 <i>Provision of resources</i> .....	31
4.3.6 <i>Intergenerational equity</i> .....	31
4.3.7 <i>Equity and fairness</i> .....	32
4.3.8 <i>Value of place</i> .....	32
4.4 Safety .....	33
4.4.1 <i>The worst case scenario</i> .....	33
4.4.2 <i>Transport</i> .....	33

4.4.3	<i>Terrorism</i> .....	34
4.4.4	<i>Free release</i> .....	34
4.4.5	<i>Confidence</i> .....	35
4.4.6	<i>Scrutiny</i> .....	35
4.5	Knowledge and information .....	36
4.5.1	<i>Independent assessment</i> .....	36
4.5.2	<i>Scope of assessment</i> .....	37
4.5.3	<i>Monitoring</i> .....	37
4.5.4	<i>Oh it's all impossible</i> .....	38
4.6	No new build .....	38
<b>5</b>	<b>The Options</b> .....	<b>39</b>
5.1	Best possible practice .....	39
5.2	Continued storage afloat .....	40
5.3	RC intact .....	40
5.4	The Ardyne Point option (but not at Ardyne Point) .....	41
5.5	Cutting up RCs and storage of packaged waste .....	42
5.5.1	<i>Cut up of RCs including RPV</i> .....	42
5.5.2	<i>Cut up of RCs excluding RPV</i> .....	42
5.6	Proven or unproven technology? .....	42
<b>6</b>	<b>The Proposals</b> .....	<b>43</b>
<b>7</b>	<b>The Sites</b> .....	<b>45</b>
7.1	Site specific focus of responses .....	45
7.2	Announcement of the seven sites and location of proposed facilities .....	45
7.3	Dominance of Scottish sites .....	46
7.4	Responses in relation to each site .....	47
7.4.1	<i>Ardyne Point</i> .....	47
7.4.2	<i>Coulport</i> .....	47
7.4.3	<i>Devonport</i> .....	47
7.4.4	<i>Dounreay</i> .....	47
7.4.5	<i>Nigg</i> .....	48
7.4.6	<i>Rosyth</i> .....	48
7.4.7	<i>Sellafield</i> .....	48
7.5	Decommissioning and aspirations for the future .....	48
7.6	Sites with existing nuclear activity .....	49
7.7	One site or several? .....	49
7.8	Devonport and Rosyth .....	49

7.9	United States and London .....	50
7.10	Use of existing sites .....	51
7.11	General siting criteria.....	51
7.12	The problem of siting intact RCs storage .....	52
<b>8</b>	<b>Consultation.....</b>	<b>53</b>
8.1	Accessibility of information .....	54
<b>9</b>	<b>The decisions.....</b>	<b>54</b>
9.1	The Front End Recommendations .....	54
9.2	The decision process .....	55
9.3	The planning process .....	55
<b>10</b>	<b>Acceptability and unacceptability .....</b>	<b>56</b>
<b>Appendix 1: Outcomes of the CIOP in relation to the FEC Recommendations.</b>		<b>58</b>
<b>Appendix 2: The proposals .....</b>		<b>85</b>
	<i>Summary of Babcock-MNS proposal .....</i>	<i>85</i>
	<i>Summary of BNFL proposal .....</i>	<i>86</i>
	<i>Summary of DML proposal.....</i>	<i>87</i>
	<i>Summary of SERCO Consortium proposal.....</i>	<i>88</i>
<b>Appendix 3: The sites.....</b>		<b>89</b>
<b>Appendix 4: The CIOP Consultation Process .....</b>		<b>92</b>
<b>Appendix 5: Project ISOLUS .....</b>		<b>94</b>
<b>Appendix 6: Acronym List.....</b>		<b>96</b>

## Executive Summary

The Warship Support Agency (WSA) of the Ministry of Defence is undertaking Project ISOLUS (Interim Storage of Laid-up Submarines) to determine the means of managing the radioactive wastes from nuclear powered submarines after they have been withdrawn from service.

The MoD currently has 27 nuclear submarines, of which 11 have left naval service and been de-fuelled and decommissioned (7 are currently in afloat storage at Rosyth, and 4 at Devonport), and has ordered 3 ASTUTE class vessels with options for further purchases.

Project ISOLUS is the process by which the UK Ministry of Defence (MoD) state that they will:

*“Define, develop and procure a safe and publicly acceptable method for the disposal of nuclear powered submarines removed from service with the Royal Navy, including the final disposal of any Low Level Waste, and the interim storage of any Intermediate Level Waste until such time as a national facility becomes available.”*

This comprises the Single Statement of Need for the ISOLUS Project.

Current MoD policy for decommissioned submarines that have left naval service is to undertake a Defuel, De-Equip and Lay-up Preparation (DD&LP): the reactor is de-fuelled and the fuel removed for long-term storage at BNFL Sellafield. The submarines, minus their fuel, are stored afloat. The work of the ISOLUS project is not therefore concerned with reactor fuel, but with other components, which are classified as Low and Intermediate Level Waste (LLW and ILW).

The UK's policy for radioactive waste is currently under review and a national ILW management facility is not now expected until at least 2050, if this is the option decided upon. This review, combined with a lack of further afloat storage space beyond 2012, led the MoD to reassess the situation and the authorisation, in 1998, by the Under Secretary of State for Defence, of a study into interim storage of laid up submarines. This was followed in May 2000 by a further announcement establishing Project ISOLUS.

As part of Project ISOLUS, in 2000 the Warship Support Agency (WSA) commissioned, in 2000, independent researchers at the Centre for the Study of Environmental Change (CSEC) in the Institute for Environment, Philosophy and Public Policy (IEPPP) at Lancaster University to conduct a Front End Consultation to ascertain the issues that the public and other stakeholders believe should be taken into account when deciding on the options and site(s) for the interim storage of the wastes. The WSA then invited commercial contractors to submit outline proposals for the management of the redundant submarines, which took into account the findings and recommendations of the Front End Consultation. These outline proposals formed the subject of this round of consultation, the Consultation on ISOLUS Outline Proposals (CIOP). CIOP ran from the 12<sup>th</sup> September to the 24<sup>th</sup> December of 2003, and was again undertaken by CSEC under contract to the MoD.

This report summarises and synthesises the responses made during the Consultation on ISOLUS Outline Proposals, which aimed to elicit the acceptable and unacceptable dimensions of the outline proposals which had been prepared by contractors and

submitted to the MoD. The CIOP team at CSEC are responsible for writing this report and deriving recommendations.

The main elements of acceptability and unacceptability raised by participants in CIOP are as follows:

Proposals are more acceptable if:

- RCs are stored intact.
- Doses to workers and the public, discharges to the environment, and risks generally are minimised using the best means available.
- Full assessment of social, environmental and ethical, as well as technical and economic, dimensions takes place in an inclusive way, and is made available to the public and to consultation.
- Full scrutiny of processes and regulation is available.
- Storage and cut out take place at sites which are not adjacent to centres of population.
- What is valued by local communities with respect to a location is respected and taken into account.
- Local communities receive substantive and substantial benefit from hosting sites; employment benefits alone are inadequate.
- Local communities have given their consent to the operations.
- Siting decisions are clearly justified, and criteria for site selection are themselves acceptable.
- Transport is minimised, and transport risks are acceptable to the public and independent experts.
- Independent assessments and reviews are undertaken.
- Information provided is comprehensive and accessible.
- No new nuclear submarines are built, at least until a final disposal route for radioactive waste is available.
- A solid guarantee is given that no submarines will be imported from overseas.
- Clear, coherent and two-way discussion has taken place between the MoD, contractors and local communities, and acceptable methods established for the continuation of such discussion.
- Project ISOLUS is clearly and demonstrably working in tandem with other government bodies in relation to developing national waste management strategy, and wider government attention is given to addressing and resolving those Recommendations which fall outside the remit of the MoD.
- A clear rationale, and associated assessments, are provided and made accessible.
- A final 'end point' for the wastes has been decided.
- The MoD 'takes charge' of the decision process and identify and specify the best way forward, rather than inviting contractors to put forward proposals.

This Report has been submitted to the MOD (Warship Support Agency) who have stated that they will consider it and publish their responses to the recommendations. These responses will give details of the MOD's intentions for proceeding with the Project and will be published on the ISOLUS Website.

# 1 Recommendations

## **Recommendation 1.....22**

The MoD should demonstrably liaise closely with the Scottish Executive, other government departments, including DTI and Defra, and with CoRWM and the LMU/NDA, especially with regard to potential sites and to ensuring that ISOLUS decisions remain consistent with developing national strategy. The proposed timing of ISOLUS decisions and implementation should be reviewed against the timetables of for the NDA and CoRWM, and decisions points identified to ensure that ISOLUS does not pre-empt or contradict other government strategy, but is integrated with developing strategy, and is able to demonstrate this..... 22

## **Recommendation 2.....22**

Any site identified for interim storage should be provided with guarantees limiting the lifetime of the store. In line with Recommendation 4, and recognising that the future cannot be fully anticipated, these guarantees should be accompanied by a commitment that any extension to the lifetime of the store will require local consent. .... 22

## **Recommendation 3.....23**

The MoD should consider, and if possible undertake, postponing a shortlisting decision and a final decision until after a national long term radioactive waste management strategy has been agreed, in order to ensure compatibility between the interim storage of the submarine wastes and the long term national radioactive waste management strategy, and so that communities can properly assess the implications of the storage of the submarine wastes in relation to the national strategy..... 23

## **Recommendation 4.....24**

Wider government recognition and attention should be paid to those issues which are being identified in relation to ISOLUS (as well as elsewhere) which are relevant to the successful implementation of a national radioactive waste management strategy, as well as to the successful implementation of ISOLUS, and the necessary measures should be put in place to enable widespread public acceptability. These measures include the decisions on and provision of compensation and community benefit, resourcing for local community participation, and full provision of data and assessments. .... 24

## **Recommendation 5.....25**

Full social and environmental assessments of proposals should be conducted, including of impacts on quality of life and local values, and the results made public. Social and environmental criteria should be given high weightings in assessments. Further public consultation on these weightings would contribute to ensuring that they reflect widespread social judgements. Social and environmental assessment should enable comparison of alternative sites (see also Recommendations 4, 6, 7, 8, 10, 11, 12, 13, 14, 15, 17, 19, 25, 26, 39, 45 and 49). .... 25

<b>Recommendation 6</b> .....	<b>26</b>
Community benefit, above and beyond planning gain and employment benefit, should be provided wherever the waste is managed and stored. The availability, extent, and form of community benefit should be made clear when proposals are made. Local communities should decide on the most appropriate form of community benefit. ....	26
<b>Recommendation 7</b> .....	<b>26</b>
At any proposed site, independent studies should be commissioned into current and historic rates of ill-effects associated with radiation; studies should include workers and the public. The results of these studies should be made accessible to the public (in line with Recommendation 4). ....	26
<b>Recommendation 8</b> .....	<b>27</b>
Any contamination of the environment arising from the management and storage of the wastes should be minimised and increases in existing levels of contamination should be avoided. Environmental monitoring and assessment data should be publicly accessible. ....	27
<b>Recommendation 9</b> .....	<b>28</b>
Contractors and MoD personnel should undergo appropriate training in presenting to, discussing with, and listening to the lay public and others.....	28
<b>Recommendation 10</b> .....	<b>28</b>
Attempts to ‘sell’ proposals to local communities cease, as these are counterproductive. Instead, a clear, documented, and agreed assessment of local costs, benefits, and compensation measures, should be presented, which acknowledges local concerns about detriment, and forms part of local decision making on the issue (see also Recommendation 13). ....	28
<b>Recommendation 11</b> .....	<b>29</b>
The MoD and contractors should be aware that speculative assertions and intentions should not be presented as certainties, and assumptions should be made explicit. Greater attention should be paid, particularly by MOD and the contractors, to the differences in meanings and definitions of words across different social groups to aid clarity and understanding. ....	29
<b>Recommendation 12</b> .....	<b>29</b>
The justification for the choice of shortlisted and final proposals (including site selection) itself needs to be inclusive and acceptable, as well as clearly stated. ....	29
<b>Recommendation 13</b> .....	<b>30</b>
Local communities should be invited to discuss what may offer them reassurance and where possible action identified as reassuring should be undertaken.....	30

<b>Recommendation 14</b> .....	<b>30</b>
Opportunities to comment on Project ISOLUS should continue to be provided. Decisions should demonstrably address issues identified as important, and reflect public values. ....	30
<b>Recommendation 15</b> .....	<b>30</b>
Radiological risks and doses should be assessed in relation to existing exposures at any locations, and this assessment presented publicly. Communities must express acceptance of any additional risk. ....	30
<b>Recommendation 16</b> .....	<b>31</b>
Local community consent should be obtained prior to a decision on siting any option (see also Recommendation 6). ....	31
<b>Recommendation 17</b> .....	<b>31</b>
Resourcing should be made available for local communities to properly study and assess proposals and to express their consent or otherwise. ....	31
<b>Recommendation 18</b> .....	<b>32</b>
The MoD should consider issues of fairness in relation to options and sites, and should make explicit how these considerations are being manifested in decisions. ....	32
<b>Recommendation 19</b> .....	<b>33</b>
The value that place has for people is recognised, and sites are sought where radioactive waste management and storage is less intrusive and conflict with these values minimised. Where compromises are being made, the judgements should be explicit and acceptable. ....	33
<b>Recommendation 20</b> .....	<b>33</b>
The worst case accident scenarios, their potential impacts, and the management and remediation measures that are available, that are associated with various options should be identified and made public as part of the assessment of options and sites. ....	33
<b>Recommendation 21</b> .....	<b>34</b>
Transport of radioactive waste should be minimised, whether it is within or outwith the submarine. All transport should be justified in terms of being part of the best option. ....	34
<b>Recommendation 22</b> .....	<b>34</b>
The potential impacts of terrorist activity should be included in identification and assessment of worst case accident scenarios and other safety studies. ....	34
<b>Recommendation 23</b> .....	<b>34</b>
Metals having more than their natural levels of radioactivity should not enter the scrap metal market. ....	34

<b>Recommendation 24</b> .....	<b>35</b>
Ways to increase confidence, particularly in contractors, should be sought. These are likely to involve increasing openness and transparency, scrutiny, provision for whistle-blowing, and public investigations into any allegations of incompetence.....	35
<b>Recommendation 25</b> .....	<b>35</b>
Proposals should include details of the scrutiny regime, and this should be stringent, and include public oversight and full openness and transparency.....	35
<b>Recommendation 26</b> .....	<b>36</b>
An independent panel should be established forthwith to preview and review, and in some cases conduct, assessments of options, sites and proposals, including technical, environmental, health, social, ethical and economic aspects. Such a panel should include at least one expert nominated by ENGOs, and should approach its task critically and constructively.....	36
<b>Recommendation 27</b> .....	<b>37</b>
Information provided should include assessments of ethical, social and local issues, as well as technical and economic aspects. Such assessments could potentially be conducted in the form of extended BPEO and/or EIA studies (see also Recommendation 5).....	37
<b>Recommendation 28</b> .....	<b>37</b>
Detailed monitoring regimes should be agreed with local consultative committees as part of an acceptable proposal.....	37
<b>Recommendation 29</b> .....	<b>38</b>
Given the understanding of radioactive waste management as complex and problematic, and the differences between perspectives as to the nature of these problems, difficulties and problems should be openly addressed and discussed, and collective solutions sought.....	38
<b>Recommendation 30</b> .....	<b>39</b>
No new nuclear submarines should be ordered or commissioned until a final disposal route for radioactive wastes exists. The current nuclear submarine programme should be reviewed.....	39
<b>Recommendation 31</b> .....	<b>39</b>
Any new nuclear submarines should have waste management built in, using the best available technology to minimise doses, discharges and risks when decommissioning takes place.....	39
<b>Recommendation 32</b> .....	<b>39</b>
Best possible means and the best available technology should be used to minimise doses, discharges and risks.....	39

<b>Recommendation 33</b> .....	<b>40</b>
Any assessment of the options and proposals should include consideration of continued interim storage afloat. Adopting an alternative option to afloat storage requires the clear and acceptable demonstration that the alternative option and its siting is preferable, taking environmental, social and ethical considerations into account, and in relation to the development of the national radioactive waste management strategy. ....	
	40
<b>Recommendation 34</b> .....	<b>41</b>
RCs are stored intact for an extended period. Cutting up of RCs should only be countenanced as an option if it can be clearly demonstrated and agreed that there will be no additional exposure to workers or discharges to the environment or other risks above those involved in intact storage of the RCs, or if there are overwhelming and publicly accepted reasons for early cut up. ....	
	41
<b>Recommendation 35</b> .....	<b>41</b>
Until cutting up can be achieved in compliance with Recommendation 34, RCs are stored intact on land. ....	
	41
<b>Recommendation 36</b> .....	<b>41</b>
The option of taking submarines to one site, cutting out the RCs there, and storing the RCs intact at that site, should be pursued. ....	
	41
<b>Recommendation 37</b> .....	<b>43</b>
Any decision to cut up the RC needs to demonstrate that the technology is tested and proven, and either applicable to all the submarines, or variations demonstrably taken into account. ....	
	43
<b>Recommendation 38</b> .....	<b>44</b>
As none of the current proposals are acceptable, other ways forward will have to be found. The MoD should seek to specify the best option and site against agreed selection criteria, and pursue development of this (see also Recommendation 49). ...	
	44
<b>Recommendation 39</b> .....	<b>45</b>
Sites should be assessed in relation to their meaning and value for the local community and the local area. Local values should be part of the assessment of the viability of a site.....	
	45
<b>Recommendation 40</b> .....	<b>46</b>
Wherever possible, sites should be identified clearly, and all sites should be announced at the start of consultation.....	
	46
<b>Recommendation 41</b> .....	<b>48</b>
Any proposal for interim storage at a decommissioning nuclear site should be accompanied by guarantees that the waste will be removed when the site is cleared. ....	
	48

<b>Recommendation 42</b> .....	<b>49</b>
Sites should be sought where there is existing nuclear activity (or other contamination), and where existing nuclear activity can be reduced so that the total risk burden is lessened. ....	49
<b>Recommendation 43</b> .....	<b>49</b>
The possibility of using more than one site for cut out and/or waste storage should continue to be considered.....	49
<b>Recommendation 44</b> .....	<b>50</b>
Cut out and storage of the RCs from the submarines currently at Rosyth and Devonport, and storage at those sites, should continue to be considered, but would require a clear and accepted justification demonstrating why it is preferable to be acceptable. A further site should be sought for the storage of RCs from submarines decommissioned in the future. ....	50
<b>Recommendation 45</b> .....	<b>52</b>
The MoD should derive, establish and publish site selection criteria, incorporating consultation responses and technical and other studies, and using a consultative process which confirms that these criteria are broadly in line with what is considered publicly acceptable. These criteria should then be used to identify and select sites, and the process and rationale of that identification and selection be made public and accessible. ....	52
<b>Recommendation 46</b> .....	<b>53</b>
The MoD should conduct a full and open identification and review of potential sites for RC storage (any of which will require access by water), including MoD sites, civil nuclear sites, dockyards contaminated by radioactive or other toxic wastes (such sites are likely to be more acceptable if clean-up is included in the proposal), and other brown field sites (particularly those with contaminated land) away from centres of population. ....	53
<b>Recommendation 47</b> .....	<b>54</b>
The consultative elements of Project ISOLUS should be continued. Further consultation should address criticisms of the CIOP. In any further stages of consultation, more attention and more resourcing is provided for printed and exhibition materials to make these more accessible. The means of publicising any further consultation should be reviewed and extended.....	54
<b>Recommendation 48</b> .....	<b>54</b>
Greater attention should be drawn to and paid to the FEC and CIOP Recommendations in further stages of the ISOLUS Project, and explicit reference should be made to these in justifying the forward programme and decisions made. ..	54

**Recommendation 49.....55**

The MoD should now collate existing studies, and, utilising independent expert advice, identify any further studies needed. An assessment should then be undertaken to confirm or otherwise that storage of the intact RC is the best option on safety grounds as well as public acceptability grounds, again with independent input and review. The option should then be specified, and tenders invited against this specification. Further consultation on proposals should have this information available to it. (See also Recommendations 5, 7, 8, 11, 12, 15, 18,19, 20, 21, 22, 34, 35, 36, 37, 38, 39, 42, 43, 44, 45, 46, and 48) ..... 55

**Recommendation 50.....55**

The implementation of Project ISOLUS should take place through the civil planning process..... 55

## 2 Introduction

The Warship Support Agency (WSA) of the Ministry of Defence is undertaking Project ISOLUS (Interim Storage of Laid-up Submarines) to determine the means of managing the radioactive wastes from nuclear powered submarines after they have been withdrawn from service. The MoD currently has 27 nuclear submarines, of which 11 have left naval service and been de-fuelled and decommissioned (7 are currently in afloat storage at Rosyth, and 4 at Devonport), and has ordered 3 ASTUTE class vessels with options for further purchases<sup>1</sup>.

Project ISOLUS is the process by which the UK Ministry of Defence (MoD) state they will:

*“Define, develop and procure a safe and publicly acceptable method for the disposal of nuclear powered submarines removed from service with the Royal Navy, including the final disposal of any Low Level Waste, and the interim storage of any Intermediate Level Waste until such time as a national facility becomes available.”*

This comprises the Single Statement of Need for the ISOLUS Project.

Current MoD policy for decommissioned submarines that have left naval service is to undertake a Defuel, De-Equip and Lay-up Preparation (DD&LP): the reactor is de-fuelled and the fuel removed for long-term storage at BNFL Sellafield. The submarines, minus their fuel, are stored afloat. The work of the ISOLUS project is not therefore concerned with reactor fuel, but with other components, which are classified as Low and Intermediate Level Waste (LLW and ILW).

The UK's policy for radioactive waste is currently under review and a national ILW management facility is not now expected until at least 2050, if this is the option decided upon. This review, combined with a lack of further afloat storage space beyond 2012, led the MoD to reassess the situation and the authorisation, in 1998, by the Under Secretary of State for Defence, of a study into interim storage of laid up submarines. This was followed in May 2000 by a further announcement establishing Project ISOLUS

As part of Project ISOLUS, the Warship Support Agency (WSA) commissioned independent researchers at the Centre for the Study of Environmental Change (CSEC) in the Institute for Environment, Philosophy and Public Policy (IEPPP) at Lancaster University to conduct a Front End Consultation to ascertain the issues that the public and other stakeholders believe should be taken into account when deciding on the options and site(s) for the interim storage of the wastes. The Front End Consultation was carried out between January and September, 2001. The reports and recommendations of the Front End Consultation are available on the consultation website at [www.isolus.org.uk](http://www.isolus.org.uk).

The WSA then invited commercial contractors to submit outline proposals for the management of the redundant submarines, which took into account the findings and

---

<sup>1</sup> The MoD's summary of Project ISOLUS is included in Appendix 5.

recommendations of the Front End Consultation. These outline proposals formed the subject of this round of consultation, the Consultation on Outline Proposals (CIOP).

Contractors were requested to include with their Outline Proposals a summary of their proposal to be placed in the public domain and be used for the consultation. These summaries comprised the information that was available to consultees on the Outline Proposals. This was supplemented by further representations of the contractors' summaries, such as maps, and background information pertaining to Project ISOLUS (produced by CSEC) and, in the latter stages of the consultation, an MSc thesis (including a review by the NRPB) assessing the generic options under consideration. A draft Environmental Impact Assessment of the generic options was provided to the National Forum and Citizens' Panel, but not publicly released.

CIOP ran from the 12<sup>th</sup> September to the 24<sup>th</sup> December, 2003, and was again undertaken by CSEC under contract to the MoD.

The aim of the consultation was to ascertain what was more or less publicly acceptable about the outline proposals, and under what conditions aspects of the proposals might be more or less acceptable.

CIOP comprised both national and local activities. At the national level, a National Citizens' Panel (involving lay people, including people from each of the named sites) and a National Forum (involving Local Authorities and Environmental/Peace groups associated with the named sites) were carried out. A consultation website, and written materials, provided the means for anyone who wished to comment to do so. Locally, the consultation has been advertised in the local media and an exhibition and public meeting held at each named site. Two discussion groups, each involving eight randomly recruited members of the public, were also carried out at each site. CIOP was overseen by a Steering Group; the minutes of Steering Group meetings are available on the consultation website.

Each activity has been reported individually, and all reports published on the consultation website. This Final Report, written by the CIOP team at CSEC, synthesises the responses and derives recommendations.

Further consultation is planned for later stages of Project ISOLUS. In the meantime, comments can be submitted to the ISOLUS consultation website at [www.isolus.org.uk](http://www.isolus.org.uk), or in writing or via tape to ISOLUS-CIOP, IEPPP, Furness College, Lancaster University, Lancaster LA1 4YT.

## 2.1 Next Steps

This Report has been submitted to the MOD (Warships Support Agency) who have stated that they will consider it and publish their responses to the recommendations. These responses will give details of the MOD's intentions for proceeding with the Project and will be published on the ISOLUS Website.

The MoD have stated that they are currently assessing sites in their ownership (and other possible sites). Should any be identified that could be suitable in principle for intact RC storage, the MoD have stated that further consultation will be conducted in relation to these sites. Any further options or outline proposals should all be subject to appropriate consultation.

Further consultation will also take place prior to a decision being made on the interim storage of the radioactive wastes from the submarines.

## 3 Summary of this Report

Outcomes of the CIOP are summarised and synthesised in this report; recommendations are derived by CSEC.

The perspectives represented here are those which were strongly articulated in the consultation. Views which were represented only by a small minority of participants are not represented in this report unless they have particular relevance; all views are recorded in the reports of each consultation activity.

Ardyne Point and Nigg were withdrawn during the consultation period, as was the McAlpine proposal utilising Ardyne Point. Responses related to these sites are included in this report.

The remainder of this section contains a number of observations on the CIOP, including a brief consideration of the differences in responses once ‘real’ proposals – and sites – are being discussed. Section 4 synthesises the generic issues raised, and Sections 5 and 6 report on issues in relation to the options and the proposals respectively. Responses in relation to specific sites, and in relation to siting overall, are presented in Section 7. Section 8 reports on commentary on the consultation itself, and Section 9 considers the decision process. Section 10 summarises key points relating to the acceptability and unacceptability of the proposals.

Appendix 1 contains the FEC Recommendations and the MoD’s responses, together with a commentary on those recommendations in relation to the CIOP responses. Summaries of the outline proposals and sites are presented in Appendices 2 and 3. Appendix 4 contains an outline of the Consultation and Appendix 5 an outline of Project ISOLUS provided by the MoD. Appendix 6 comprises a list of acronyms and abbreviations used in this report.

### 3.1 Demonstrability and Accessibility

The terms ‘demonstrable’ and ‘accessible’ are used repeatedly in this report, and in the recommendations, and it is therefore worthwhile clarifying their meanings:

- Demonstrability is used to indicate that there is a requirement that not only is an action undertaken, but that it is seen to be undertaken. This implies that the relevant party is responsible for demonstrating that something is happening, at the least by placing information in the public domain, and generally by taking further action to draw attention to this information.
- Accessibility is used, generally in relation to information, to indicate that something should not only be available, but that it should be available in a form that it is relatively simple for the potential user to access. This implies that information, for example, should be physically accessible (e.g. available on request and/or at local venues) and be readily understandable (e.g. use plain English and not presume particular knowledge on the part of the reader).

### 3.2 Observations on the CIOP

#### 3.2.1 Strategic and deliberative action

The CIOP involved consideration of tangible proposals and sites, rather than abstract consideration of the issues as was the case in the FEC. This meant that many responses

exhibited strategic rather than a deliberative characteristics, particularly at the local level. That is, many participants approached the proposals in relation to local interests and in relation to justifying why particular sites should not be used: such responses were aimed at getting particular sites removed from the list of possibilities. This is both legitimate and to be expected, but it is in tension with a more deliberative approach which seeks to generate consideration of collective rather than particular interests.

That said, many participants also considered the more general perspectives, and did not approach the proposals solely from a local standpoint. The key example of this is those participants from Plymouth and Rosyth who argued that perhaps the best thing was to continue to store the radioactive wastes from the submarines already present at these sites, as this was thought to be the safest and perhaps fairest option. Here, the need for safety to be prioritised was seen to override local and individual detriment. This is far from being the only example; many respondents, sometimes prompted by questions posed, offered views on what the components of an acceptable proposal might be and what was to be considered generally unacceptable.

The extent to which responses are strategic or deliberative can broadly be associated with the form of consultation activity. Public meetings were clearly largely strategic events, with many participants understandably geared to ‘destroy’ the relevant proposals rather than to conduct a debate about acceptability and unacceptability. Strategic approaches tend to be encouraged by the structure of public meetings, where insufficient time is available to answer questions fully or to properly discuss (i.e. deliberate) the issues, as well as by preconceptions of what happens at public meetings. Such expectations of what a public meeting comprises – expectations shared by contractors as well as local participants – should not, however, mask the very real expressions of concern and need for these concerns to be heard that participants voiced. A public meeting also has an important position in local politics, and is useful as an indicator of the flavour of those politics. In the CIOP, public meetings also generally gave a synopsis of the issues that were being raised in other consultation events.

By contrast, the national citizens’ panel and stakeholder forum, as well as local discussion groups, were substantially deliberative, as the format and conduct of these encourage and enable more substantial conversations than those possible in a public meeting, or in written communications. Many web and written responses were nonetheless concerned with principles of acceptability – such as the points that waste should not be stored in areas of considerable natural beauty, and that any storage programme needs to at least balance the detriments with benefits to the local community.

Local concerns are genuine and represent the daily reality experienced by local residents. The observations above are in no way intended to undermine the validity of local concerns, and are not intended to support the argument that national interests should override local interests. Rather, these observations are intended to point to the need for more deliberative fora – such as discussion groups and local panels – to be included in consultation activities which involve potential sites.

### **3.2.2 Focus of consultation: do we start from here?**

The consultation overall focussed more on the proposals – and specifically on what was need to generate an acceptable proposal – rather than the details of implementation of a proposal, such as monitoring and regulation. Participants were more concerned with some of the basic components of the proposals, such as the size and precise location of

the facilities required. There is a sense in which the unwillingness to accept any of the proposals generated a resistance to examining the details of implementation, as this was felt to be complying with the position being imposed by the MoD process. Instead, most respondents felt that the answer to the question of what would make proposals more acceptable was to start from a different place, as described in the main body of the report.

## 4 The Issues

### 4.1 The national radioactive waste management strategy

Project ISOLUS was instituted after the halting of plans to develop a deep underground national radioactive waste disposal facility in 1997. Up until this point, the MoD's intention was to store submarines afloat for a 30 year period, and then to cut up and package the wastes for emplacement in that facility. When plans were halted, the presumed date for a long term management facility to be operational shifted from 2020 to 2050 or thereafter.

The MoD recognised that afloat storage capacity would be insufficient to store all the submarines until 2050, and that some form of action need to be taken. This was coupled with criticism from both the public and RWMAC that continued afloat storage was unacceptable. The MoD undertook the 'ISOLUS Investigation', in 1998-9, which examined a range of options for management of the submarines and their radioactive waste. The options comprised:

- continued storage afloat of the whole submarine or of cropped hulls,
- storage on land of either the intact submarine or RC, or packaged waste.

Continued storage was, and continues to be, viewed as interim storage, i.e. as temporary storage pending final emplacement in a national facility.

The ISOLUS Investigation concluded that interim storage on land, in some form, was the preferred way forward, and this conclusion was supported by the Front End Consultation, commissioned in 2001.

The outputs of the FEC were presented to contractors with the invitation to submit outline proposals for the management of the wastes in 2003, and CIOP commissioned to consult on those outline proposals in August 2003.

Alongside the MoD initiative to take action on the submarines and their wastes, after some years of inaction, the Government published a consultation paper 'Managing Radioactive Waste Safely', in the Autumn of 2001. One outcome of this consultation was that an advisory committee – the Committee on Radioactive Waste Management (CoRWM) – should be established to, firstly, advise Government on the best option or options for radioactive waste management, and, secondly, advise on a site or sites for the conduct of that option or options, with initial advice forthcoming in 2006. The membership of CoRWM was announced in October 2003 (during the CIOP consultation period). Over the same period, the Liabilities Management Unit has been established as the precursor to a Nuclear Decommissioning Agency (NDA) which will take over management of the civil, and potentially military, nuclear waste legacy.

Informed opinion recognises that national radioactive waste management policies are hard to establish and have usually been impossible to implement. There is little confidence that a national strategy and facility or facilities will be on line over a predictable timescale. The advent of CoRWM and the NDA illustrates the intention to address the problem of radioactive waste management, but no decisions, and no facilities, have yet been established.

Against this national backdrop, the MoD has been progressing its development of policy implementation for interim storage of the submarine wastes.

#### **4.1.1 Integration of Project ISOLUS with national radioactive waste management strategy**

The relationship of Project ISOLUS with the developing national radioactive waste management strategy was a central theme of the CIOP. The timing of ISOLUS was seen by participants as inconsistent with this development, particularly with regard to decisions yet to be made on long term management of the wastes, where any repository or repositories will be located, and the detailed remit of the NDA and the implications of this for BNFL, UKAEA and the MoD. ISOLUS was seen as being in the wrong place at the wrong time. Participants were concerned that:

- Project ISOLUS is moving ahead of national policy development, and is not properly integrated with that policy
- By moving ahead of national policy, ISOLUS is to some extent pre-determining that policy by making decisions now. For example, the commitment to interim storage is premised on the idea that a national facilities or facilities will be available in the future and that the interim storage facility will itself be decommissioned and the wastes removed to the national facility. A decision based on this premise puts pressure on a national policy to provide such a national facility.
- The accumulation of radioactive wastes at a site can lead to further wastes also being located at that site, and, possibly, for that site to become a national repository (see also Section 7: The Sites).
- The absence of knowledge of the final destination of wastes compromises decisions on the location of interim storage, and could result in wastes being transported unnecessarily.

Participants repeatedly stated that it was necessary for the MoD to demonstrate that ISOLUS was closely integrated with developing national strategy, and that decisions on the submarine wastes should not compromise national strategy.

In the light of these concerns, any proposal for management of radioactive waste will clearly be more acceptable if it can demonstrate that it is integrated with, and does not predetermine, developing national waste management strategy. Given that these developments are ongoing, and thus that current assumptions and intentions could change, it is necessary to identify the points at which commitments will be made to enable proper integration.

## **RECOMMENDATION 1**

The MoD should demonstrably liaise closely with the Scottish Executive, other government departments, including DTI and Defra, and with CoRWM and the LMU/NDA, especially with regard to potential sites and to ensuring that ISOLUS decisions remain consistent with developing national strategy. The proposed timing of ISOLUS decisions and implementation should be reviewed against the timetables of for the NDA and CoRWM, and decisions points identified to ensure that ISOLUS does not pre-empt or contradict other government strategy, but is integrated with developing strategy, and is able to demonstrate this.

### **4.1.2 Interim storage**

Interim storage was, of itself, considered to last decades, or, as many participants have noted, the rest of their lives – and their children’s lives<sup>2</sup>. This was seen as effectively equivalent to indefinite or permanent storage. The term ‘interim’ was seen as misleading, especially in the absence of any agreement as to what would happen to the wastes at the end of the interim period.

Participants asked how long the wastes would be stored, and the absence of a clear answer (as the long term management option(s) and implementation dates are not known) exacerbated concerns that the wastes would remain in situ for longer periods than indicated, or permanently.

There was also a lack of confidence that a national facility or facilities will ever be built, and a corresponding fear that wastes will remain in interim storage indefinitely. Thus, it was feared that an interim storage site could become a de facto permanent repository. Radioactive waste storage facilities, and particularly permanent repositories, were widely and strongly felt by participants to be ‘bad’ and to be resisted (the history of radioactive waste management commonly demonstrates this response).

Thus, the possible link between interim storage for the ISOLUS wastes and permanent storage of these (and potentially other) wastes needs to be broken to enhance public acceptability. That is, people need to be certain that the wastes will only be stored for an interim period, and that only the submarine wastes will be stored.

## **RECOMMENDATION 2**

Any site identified for interim storage should be provided with guarantees limiting the lifetime of the store. In line with Recommendation 4, and recognising that the future cannot be fully anticipated, these guarantees should be accompanied by a commitment that any extension to the lifetime of the store will require local consent.

---

<sup>2</sup> Regulation is based on interim storage lasting 30 – 50 years.

### 4.1.3 Attracting further waste

Repeatedly, participants expressed the concern that if the radioactive wastes from the submarines were accepted, then their site would attract further radioactive wastes, perhaps importing wastes from abroad, and possibly becoming an international centre for the management of radioactive wastes from nuclear powered submarines. A minority of participants at Dounreay and Rosyth viewed becoming a 'centre of excellence' for management of submarine wastes as positive, due to the employment and development opportunities this would offer. People from Coulport, Dounreay and Sellafield also raised fears that should they accept the wastes from the submarines, the national repository would then follow and be located at their site.

The interim and eventual locations of LLW and ILW stores or repositories are not known, and surface or near surface storage, as well as deep underground repositories, are possible, as is the use of multiple sites. In this situation, it is not possible to offer any guarantees that sites used for the submarine wastes will not be also considered for other UK wastes. This again highlights the inter-relationships between Project ISOLUS and the national strategy.

Clarity regarding the potential for any ISOLUS site to be used for other wastes assists the public acceptability of ISOLUS proposals, both in terms of providing greater confidence that the use of the site is limited, and, alternatively (should other wastes accrue) in terms of identifying and maximising benefits from any extended use.

National policy development over the next three years is planned to reach a decision on the long term strategy (although not the site or sites for implementation), and once this decision is made, local communities and others will be better able to judge the implications of proposals regarding the submarine wastes. This suggests that a shortlist of proposals is not prepared until after a national strategy is announced, and at the least that a final decision on the management and storage of the submarine wastes is not made until a national strategy has been agreed. As the MoD's current timetable is to make a decision in 2006, and CoRWM are expected to make recommendations to Government in 2006, this suggests a delay to the MoD timetable to allow time for the Government response and possible decision in relation to CoRWM's recommendations.

### RECOMMENDATION 3

The MoD should consider, and if possible undertake, postponing a shortlisting decision and a final decision until after a national long term radioactive waste management strategy has been agreed, in order to ensure compatibility between the interim storage of the submarine wastes and the long term national radioactive waste management strategy, and so that communities can properly assess the implications of the storage of the submarine wastes in relation to the national strategy.

### 4.1.4 Wider policy context

Many of the issues raised in the CIOP, and in the FEC, require central Government action for a full response. Some issues, such as the provision of compensation and community benefit (see section 4.2.1 Adverse effects and Compensation), and the provision of resourcing for local communities to fully engage in consultation (see section 4.3.5 Provision of resources), require a Government decision before ISOLUS can proceed. Others, such as the provision of full health and environmental data in

the public domain (see section 3.1 Demonstrability and Accessibility), require resourcing and changes in practice in a number of agencies.

In this sense, the ISOLUS Project and associated consultation is identifying and prompting action on issues relevant to wider government strategy which are very likely to require resolution before a national waste management strategy can proceed, if this is to happen in a broadly publicly acceptable way.

#### **RECOMMENDATION 4**

Wider government recognition and attention should be paid to those issues which are being identified in relation to ISOLUS (as well as elsewhere) which are relevant to the successful implementation of a national radioactive waste management strategy, as well as to the successful implementation of ISOLUS, and the necessary measures should be put in place to enable widespread public acceptability. These measures include the decisions on and provision of compensation and community benefit, resourcing for local community participation, and full provision of data and assessments.

## **4.2 Social and Environmental Considerations**

These were overwhelmingly considered not to have been properly considered in the outline proposals, and to be of high importance, particularly to the communities at proposed sites.

Proposals to manage and store radioactive waste were described as impacting profoundly on quality of life. These impacts included anxiety and fear associated with increased risks, damage to and contamination of the environment, damage to local economies, stigma, and visual intrusion. Natural and cultural heritage are important in relation to the sense of value and ownership of a location, and, in turn, the sense of threat experienced in relation to the proposals.

There was a strong sense, particularly in association with Ardyne Point, Coulport, Nigg and Devonport, of the area being desecrated in a fundamental sense by existing and proposed nuclear activity. Scottish respondents particularly emphasised the contribution made to quality of life, both for residents and visitors, by natural beauty and an unspoilt and uncontaminated environment, and saw this as undermined by the presence of radioactive waste.

The emphasis, explicit and implicit, on social and environmental considerations, is axiomatic when proposals involve particular sites. People are, quite reasonably, concerned with the potential impacts on those aspects of their lives which they value, and it is clear from responses that social and environmental dimensions are of high value and concern.

It is notable that conventional technical appraisal has not routinely included these dimensions, and has, for example, tended to consider social impacts only in relation to direct economic gains, and environmental impacts in terms of effects on wildlife and so forth, rather than capturing the value that the environment has, *per se*, for many local residents and others. However, in some areas more comprehensive social and environmental assessment has been developed (particularly, for example, in Strategic Environmental Impact Assessment (SEIA)), and these provide models for ISOLUS.

Social and environmental impacts need, of themselves, to be acceptable for a proposal to be acceptable. Clarity about these impacts is therefore necessary, both for site communities and for those developing proposals.

It is clear that, in order to assess proposals and particularly sites, in relation to each other and in relation to overarching criteria, information on and assessment of social and environmental aspects and impacts and their relative importance to different communities is needed.

## **RECOMMENDATION 5**

Full social and environmental assessments of proposals should be conducted, including of impacts on quality of life and local values, and the results made public. Social and environmental criteria should be given high weightings in assessments. Further public consultation on these weightings would contribute to ensuring that they reflect widespread social judgements. Social and environmental assessment should enable comparison of alternative sites (see also Recommendations 4, 6, 7, 8, 10, 11, 12, 13, 14, 15, 17, 19, 25, 26, 39, 45 and 49).

### **4.2.1 Adverse effects and Compensation**

The impacts of hosting radioactive waste facilities were overwhelmingly identified as detrimental.

Development, regeneration and aspirations for the future of an area were all of high concern, as radioactive waste management and particularly storage facilities were seen to contradict these. The stigma associated with radioactive waste was seen as having real impacts, especially on the development of tourism and on quality of life. In addition, people at existing nuclear sites seem to be looking towards a future where those sites will have been decommissioned, and the import of further waste seems to contradict this.

The economic impacts of the proposals were very largely seen as negative. The provision of relatively small numbers of jobs were not seen as sufficient to outweigh negative effects on other industries, such as tourism, fishing and farming, and as devaluing the area generally, for example resulting in lower property prices and discouraging the development of other industries. This economic detriment is seen as requiring compensation as well as full evaluation.

By contrast, some participants at Dounreay and Rosyth noted the potential for benefit via the provision of employment, and for these sites to develop as centres of excellence, possibly attracting further nuclear or submarine work. The maintenance of expertise was also seen as potentially positive.

It was asserted repeatedly that any proposal should identify community benefits and these should be made clear to the communities potentially hosting sites. Benefits – in the form of community benefits as well as employment and planning gain – were seen to be necessary if local co-operation was sought. It was considered that the communities ‘bearing the burden’ should determine the form of community benefit. Some respondents considered relocation should also be offered to people living close to a site used for radioactive waste storage.

Compensation was also considered by some to be bribery, not effective in persuading people to accept something they did not want and which had adverse effects, and as

perpetuating inequalities and exploiting poor communities. This did not appear to outweigh the calls for compensation in the form of community benefit, which was seen as providing a means of balancing the disbenefits, rather than a means of persuasion or bribery.

## **RECOMMENDATION 6**

Community benefit, above and beyond planning gain and employment benefit, should be provided wherever the waste is managed and stored. The availability, extent, and form of community benefit should be made clear when proposals are made. Local communities should decide on the most appropriate form of community benefit.

### **4.2.2 Health**

Concerns regarding the health impacts of radiological exposure were a dominant theme, especially in relation to proposed sites. People were clearly very concerned about potential health impacts. Uncertainty regarding the health effects of low level radiation was expressed widely, with a general commitment to the idea that any increase in exposure increases risks (see section 5.1 Best possible practice).

At sites with existing nuclear activity, studies were repeatedly requested into the current incidence of cancers and other diseases and ill-effects, such as mutagenicity, associated with exposure to radiation. It was pointed out that without such studies, it would be impossible to provide the evidence to support the assertion that health impacts would be non-existent or negligible.

Health effects, particularly related to low levels of radiation exposure, are contested, and people clearly require demonstration that the potential health effects of the proposals are negligible. Whilst this cannot be proven in an absolute sense, and given the local focus of concern, the accessible provision of the results of studies of local ill-effects enables people to assess these risks. As discussed in relation to other studies and assessment (see section 4.5.1 Independent assessment), such studies will generate greater confidence if they are seen to be independent, and to incorporate critical review.

## **RECOMMENDATION 7**

At any proposed site, independent studies should be commissioned into current and historic rates of ill-effects associated with radiation; studies should include workers and the public. The results of these studies should be made accessible to the public (in line with Recommendation 4).

### **4.2.3 Environmental impact**

The environmental impact of the proposals was seen as overwhelmingly negative, primarily in terms of potential discharges to the environment (deliberate or accidental) and impacts on the environment (as distinct from and in addition to impacts on humans). As above (4.2: Social and Environmental Considerations) environmental concerns also included sensitivity to the integrity of the environment, including considerations of natural beauty and impacts on wildlife. Around existing nuclear sites, existing levels of contamination were generally considered to be too high, and any addition unacceptable.

Better information was also required on the levels of existing and additional contamination and its locations, in order to be able to properly judge proposals.

## **RECOMMENDATION 8**

Any contamination of the environment arising from the management and storage of the wastes should be minimised and increases in existing levels of contamination should be avoided. Environmental monitoring and assessment data should be publicly accessible.

### **4.2.4 Trust and Relationships: Do you think we don't matter?**

Good relationships between, particularly, the contractors and the MoD and the public, are crucial to the acceptability of Project ISOLUS. Trust and confidence (see also Section 4.4.5 Confidence) are essential components of these relationships.

The CIOP has demonstrated, as did the FEC, that most people do not trust either the MoD or the contractors, particularly in terms of acting in the public interest rather than commercial or political interests. Some confidence in contractors' competence, expressed as being born of necessity, was stated at Sellafield, and at Rosyth some confidence was expressed although explicit lack of confidence was also reported.

Relationships are two way affairs, and one clear observation can be made from CIOP: that people did not feel or believe, or see demonstrations of, contractors (and to some extent the MoD) genuinely taking account of what was being said.

The presentations and answers that contractors gave at the NCP, NF and public meetings, as well as the Section 5 outlines, were considered to be highly inadequate by many respondents, even where the outline nature of the proposals was accepted. The information, presentations and answers provided by the MoD and contractors focussed very much on the technical aspects of proposals, and often required some prior technical knowledge to be understandable. Additionally, the perspective of contractors and the MoD was very much focussed on the site itself, rather than the surrounding area. Consultees expressed the opinion that this was seen as a mark of disrespect, or lack of concern, for the public's experience and views, which in turn further conflicts with the development of trust.

The internal cultures of the nuclear and defence industry are at odds with those of the public. This is apparent in many ways, including the language used and the values attributed, and extends to the way in which the problem is being defined and what is considered to be relevant or otherwise. The working culture of the nuclear industry, and to a large extent the MoD, has commonly been identified as 'technocentric'. That is, the way of thinking within such organisations is focussed on technical and economic considerations, and problems are understood and defined as amenable to technical resolution, within economic constraints. However, the wider public understand issues more broadly, and require social and ethical considerations to be addressed. There is, of course, immense variability in the different ways in which different people and groups think about things, and what they consider to be important and sensible.

Consultation, dialogue, and similar activities provide the opportunity for different people and groups to begin to understand others' perspectives. To fulfil the requirement for public acceptability, it is clear that the onus is on the MoD and the

contractors to better understand the nature of public views, and this involves being better able to participate in consultation activity.

### **RECOMMENDATION 9**

Contractors and MoD personnel should undergo appropriate training in presenting to, discussing with, and listening to the lay public and others.

Present in many responses was the perception that in order to make these proposals, contractors and/or the MoD must think that local people were either stupid, or that they did not matter and their views were not of concern. Various aspects of proposals were particularly associated with a sense that contractors did not respect consultees. The stupidity perception centred around the idea that there could be overall benefit to an area accepting these wastes, and rejection of the contractors' claims that there would be overall benefits in terms of employment. The feeling that people didn't matter was particularly obvious in relation to the perception that Scotland is remote and/or has a low density of population. Local populations were clearly affronted by proposals that stated that sites were not close to centres of population or areas of natural beauty and environmental worth.

### **RECOMMENDATION 10**

Attempts to 'sell' proposals to local communities cease, as these are counterproductive. Instead, a clear, documented, and agreed assessment of local costs, benefits, and compensation measures, should be presented, which acknowledges local concerns about detriment, and forms part of local decision making on the issue (see also Recommendation 13).

It was clear that many respondents did not believe the outline proposals, especially in respect of whether waste would be stored at particular sites, and for how long. Whilst this could be interpreted as a misunderstanding of the proposals, more generally it appears that the genuine differences in what is being considered under the heading of 'storage of radioactive waste', and other terminology, are giving rise to confusion and, because, in this example, contractors did not specify the requirement for shorter term storage on cut up sites, accusations of cover up and dishonesty.

Experience has also led people to recognise that initial proposals do not necessarily describe what comes to pass: this was particularly evident in the concern that an interim storage site could become an indefinite, de facto, permanent storage site.

Central terms such as ‘safety’ also require attention: it is normal, for example, for the industry to consider safety in terms of meeting the regulatory requirements: once these are met, safety is considered to be achieved. The lay understanding of safety is not fully reflected in regulatory requirements, and includes aspects such as the sense of security people have, and the level of confidence in regulation and control. It is therefore necessary to understand such differences to enable proper communication, and incumbent on the MoD and contractors to ensure that the language they use is appropriate.

## **RECOMMENDATION 11**

The MoD and contractors should be aware that speculative assertions and intentions should not be presented as certainties, and assumptions should be made explicit. Greater attention should be paid, particularly by MOD and the contractors, to the differences in meanings and definitions of words across different social groups to aid clarity and understanding.

### **4.2.5 Justification**

That the proposals themselves were not generally seen as following the FEC Recommendations was understood by participants as being ‘arrogant’ and a ‘dismissal of public views’. Particularly, the preference expressed in the majority of outline proposals for early cut up of the RCs was seen a failure to take public views into account, when the FEC was understood to have identified an overall preference of intact RC storage. The justifications and explanations of contractors’ selection of this option – that skills and disposal routes may not be available in the future – were not judged to be sufficient to override considerations of additional dose and additional risks involved in early cut up, and were not seen by participants as being acceptable reasons for early cut up and packaging.

Explication of the reasoning and justification of the choices made were strong requirements expressed repeatedly. That such reasoning and justification must be judged to be acceptable if proposals are to be acceptable is axiomatic. It is clear in several elements of the CIOP that acceptability is dependent on an acceptable and explicit rationale being produced for the selection of options and sites.

## **RECOMMENDATION 12**

The justification for the choice of shortlisted and final proposals (including site selection) itself needs to be inclusive and acceptable, as well as clearly stated.

## **4.3 Ethical issues**

### **4.3.1 The right to live without fear**

Respondents expressed their belief that they and their communities had the right to live without the fear of nuclear accidents or radioactive contamination.

The point was made that, regardless of (official estimates of) the likelihood of such events, the perception of their possibility generates real anxiety and discomfort, which in turn impact significantly on quality of life (see section 4.2 Social and Environmental Considerations).

### **RECOMMENDATION 13**

Local communities should be invited to discuss what may offer them reassurance and where possible action identified as reassuring should be undertaken.

### **4.3.2 The right to be heard**

People obviously felt strongly that they and their communities had a right to be heard, that issues that were important to them should be addressed, and that what was valuable to them should be respected.

### **RECOMMENDATION 14**

Opportunities to comment on Project ISOLUS should continue to be provided. Decisions should demonstrably address issues identified as important, and reflect public values.

### **4.3.3 The right to live without (additional and imposed) risk**

The proposals were not understood in isolation, but in relation to current and historic nuclear activity. The risks were therefore recognised as additional to those already borne by communities near nuclear activities.

Existing risks were also felt as imposed: given a choice, many respondents implied, they would prefer existing nuclear activity in their area to cease. Regulation does not assess the risks of additional dose through illegal operations or accidents in the same way as the public understand these risks, which adds to a sense of imposition. It is worth noting that the research literature on risk perception consistently finds that people consider imposed risks to be of more significance than those that people can choose to avoid.

Participants indicated a strong sense that they had a right to live without these risks being imposed on them, and that additional risks would be resisted. This was particularly strongly expressed in relation to Coulport, Devonport and Sellafield.

### **RECOMMENDATION 15**

Radiological risks and doses should be assessed in relation to existing exposures at any locations, and this assessment presented publicly. Communities must express acceptance of any additional risk.

#### **4.3.4 Community consent and the right to say no**

It was quite clear that people feel communities should give their consent prior to implementation of a proposal to manage or store radioactive waste in their area, and that communities should have the right to refuse such consent. Local referenda were specifically called for in some areas.

Many respondents stated that there would be a very strong opposition to any further proposals in relation to their sites or to any sites in Scotland. Non violent direct action (understood as including action against property, but not against living creatures) was cited as probable by several participants, and the strength of feeling expressed widely supports this. The nature of such opposition is such, however, that it requires local support to be sustained; additionally, the majority of strongly felt views expressed were in relation to particular sites/areas. It therefore seems plausible that if a local community accept a facility, direct action, along with other expressions of resistance, is less likely.

As community benefit (see 4.2.1 Adverse effects and Compensation) cannot be directly considered in the planning process, some other form of local consideration and expression of consent or refusal is required. Experience overseas and in relation to other issues was seen to provide possible models.

Without local community consent, it is not possible to say that a proposal is publicly acceptable.

#### **RECOMMENDATION 16**

Local community consent should be obtained prior to a decision on siting any option (see also Recommendation 6).

#### **4.3.5 Provision of resources**

The point was made that providing the means for communities to assess proposals and express consent, or otherwise, is itself a substantial task, and local authorities do not have the available resources to undertake the co-ordination of this, and to conduct whatever local studies may be required. Resourcing is therefore required in order to fulfil Recommendation 16.

#### **RECOMMENDATION 17**

Resourcing should be made available for local communities to properly study and assess proposals and to express their consent or otherwise.

#### **4.3.6 Intergenerational equity**

A very strong sense of responsibility to future generations was expressed. This was mainly in relation to not contaminating the environment further, and thus not exposing future generations to potential risks. Discharges and accidental releases were seen as placing further burdens on future generations. The concern that we manage the wastes now was also present, and whilst there was a powerful desire to solve the problem now rather than leave it to future generations, it was also widely thought that a solution is not currently available (in terms of final disposal), and we have no choice but to do the best in relation to the lack of such a solution.

The best present course of action was thus seen as doing what is necessary to put the wastes into safe storage, whilst not adding to discharges and contamination which would burden future generations. This meant that storage of the intact RCs was the preferred option (see Recommendation 34).

A minority expressed the view that we should do as much as is possible as soon as possible, to avoid leaving the responsibility for action on future generations. This supported the case for early cut up of the RCs. Others considered that there were arguments both for and against cut up and packaging now and storage of intact RCs in terms of intergenerational equity.

### 4.3.7 Equity and fairness

Considerations of equity are hard to resolve, but were clearly fundamental to the ways in which people were considering the proposals. That whatever strategy adopted should be fair, in terms of the distribution of benefit and detriment, was obviously deeply believed. Several particular dimensions appeared during CIOP:

- Environmental justice:
 

Many respondents explicitly or implicitly raised issues of environmental justice. The consideration of environmental justice was viewed as requiring that an assessment is made of whether environmental burdens are disproportionate across sectors of society. Such an assessment is seen as involving the full provision of information and involvement of communities in decision making, as well as recognition of negative impacts on health and quality of life, including perceived impacts which have real effects, and in relation to other potential benefits in the area. Community consent to site selection is central.
- Compensation for detriment (see Section 4.2.1)
- That it may be fairer to use several sites for waste storage, and to use sites in the south east rather than the north west and Scotland, which are seen to already carry more than their fair share of the nuclear burden.
- That risks and radiation exposure associated with ISOLUS are, around existing nuclear sites, additions to existing risks – and that risk is something that should be distributed more equitably.
- That there can be trade offs between the removal of existing risks and new risks.

The sense that particular communities had ‘done their bit’ in relation to existing and historic nuclear activity was particularly strong at Coulport, Dounreay, Devonport and Sellafield.

## RECOMMENDATION 18

The MoD should consider issues of fairness in relation to options and sites, and should make explicit how these considerations are being manifested in decisions.

### 4.3.8 Value of place

There was a substantial emphasis throughout the consultation on the high value people place on their local area. Natural beauty and a clean and unspoilt environment,

in particular, was emphasised as of importance for its own sake as well as for the development opportunities afforded. Radioactive waste, was experienced by participants as both ‘horrifying’ in its own right, and as carrying substantial stigma, was understood as a threatening intrusion. This was felt by participants from both areas with existing nuclear activity and those without.

Radioactive waste management and storage conflicts powerfully with the value ascribed to natural beauty and unspoilt and ‘clean’ environments and other aspects of place, as well as with aspirations for the future of currently decommissioning sites. It also conflicts with a less tangible sense of place: it is clear that a place where radioactive waste is stored is felt to be very different to one where that it is not the case.

There was a strong perception that areas proposed for waste storage were being seen as sacrificial by the contractors, the MoD, and Government, and were not valued as they are by local community.

### **RECOMMENDATION 19**

The value that place has for people is recognised, and sites are sought where radioactive waste management and storage is less intrusive and conflict with these values minimised. Where compromises are being made, the judgements should be explicit and acceptable.

## **4.4 Safety**

As in the FEC, safety was repeatedly affirmed as a fundamental requirement. Safety concerns focussed on the effects of radiation on people and the environment, particularly in relation to discharges and accidents (see also Sections 4.2.2 Health and 4.2 Social and Environmental Considerations), especially accidents during transport (see also Section 4.4.2 Transport). Concern for future generations was expressed strongly, particularly in relation to any discharges or dispersal of radioactive material which would remain in the environment in the longer term.

### **4.4.1 The worst case scenario**

It is important to note that people are concerned with the worst case accident scenario, and require that this is identified, made public knowledge, and the consequences are acceptable. The point that the worst case is also an extremely unlikely event does not, for most people, ameliorate this concern, and they continue to require that the worst case is acceptable. This implies that it is necessary for there to be explicit public review of the worst case scenarios.

### **RECOMMENDATION 20**

The worst case accident scenarios, their potential impacts, and the management and remediation measures that are available, that are associated with various options should be identified and made public as part of the assessment of options and sites.

### **4.4.2 Transport**

The transport of radioactive materials continues to be of major concern to the public. It was affirmed that transport should be minimised, and certainly, proposals which

involved movement of the wastes more than once (i.e. movement to a cut out or up site, and then movement to a storage site) were seen as unnecessary.

Some respondents explicitly considered the balancing necessary between transport risks and the risks and other factors involved in not transporting wastes, e.g. keeping them at a particular site. These participants concluded that it was necessary to have full safety assessments in order to make this judgement.

Concerns were raised specifically in relation to the dangers of sea transport in the Pentland Firth, and objections to transport through the Irish Sea.

## **RECOMMENDATION 21**

Transport of radioactive waste should be minimised, whether it is within or outwith the submarine. All transport should be justified in terms of being part of the best option.

### **4.4.3 Terrorism**

The possibility of terrorist attack was taken as a given. This led some respondents to argue that any waste storage should be capable of withstanding such attacks, particularly from the air, perhaps by being stored below ground. The RC was generally seen as a substantially more robust package in this respect.

Some emphasised that they considered their site to already be a potential target due to existing nuclear activity: this was represented particularly strongly in relation to Coulport and Devonport. The presence of radioactive waste at these sites was seen to add to the probability and consequences of any such attack.

Site security at Coulport and Devonport was also repeatedly stated as being inadequate to prevent terrorist incursions, with attention being drawn to the point that protestors had repeatedly gained access to these sites.

## **RECOMMENDATION 22**

The potential impacts of terrorist activity should be included in identification and assessment of worst case accident scenarios and other safety studies.

### **4.4.4 Free release**

Concern was expressed regarding the release into the scrap metal market of the parts of the submarine outside the RC, particularly in relation to those parts that are or may be radioactive or contaminated with radioactivity. This concern was only expressed by those who had engaged more fully with the consultation, probably because the synopses of information (rather than the fuller information studied by these participants) that were presented implied that there was no radioactive contamination outside the RC.

## **RECOMMENDATION 23**

Metals having more than their natural levels of radioactivity should not enter the scrap metal market.

#### 4.4.5 Confidence

The fear that safety would be compromised by cost because contractors would prioritise profit was widely expressed. The level of confidence expressed in contractors, and in the MoD, was mixed, but predominantly represented a lack of trust in the motivations of contractors, particularly in relation to commercial priorities, and some strong expressions of what was stated to be ‘insider knowledge’ of the incompetence of, particularly, DML and Babcock. However, strong expressions of confidence in the workforce, and to some extent the management, at Devonport, Rosyth and Sellafeld, were also expressed. The MoD were generally seen as being in a more complex position, with a variety of sometimes conflicting motivations, and there appeared to be a general assumption that the MoD were competent, other than in matters of financial control<sup>3</sup>.

Particular concerns were expressed that, no matter how stringent the regulations, working practice could and would subvert these.

It was seen by participants as essential to the acceptability of a proposal that there is sufficient confidence that the work can and will be carried out properly, and that those involved are trusted to do this.

#### RECOMMENDATION 24

Ways to increase confidence, particularly in contractors, should be sought. These are likely to involve increasing openness and transparency, scrutiny, provision for whistle-blowing, and public investigations into any allegations of incompetence.

#### 4.4.6 Scrutiny

Scrutiny issues were considerably less visible than during the FEC, perhaps because they were supplanted by the emphasis on more site specific concerns, and because of the focus on generating an acceptable proposal, rather than the details of implementation of that proposal. The focus on the proposals, however, gave rise to the strong articulation of the need for independent review of the information on which decisions were being based (see also Section 4.5.1 Independent assessment).

Participants who engaged more with the options and the proposals tended to raise some issues of scrutiny; the FEC Recommendations were generally affirmed. More confidence was expressed in the requirements of existing regulation than during the FEC, but considerable concern expressed that regulations were not fully complied with, and that in some cases regulators were too close to the industry and that their decisions did not properly reflect the public interest. The need for openness was continuously affirmed, as was the need for local involvement and oversight.

#### RECOMMENDATION 25

Proposals should include details of the scrutiny regime, and this should be stringent, and include public oversight and full openness and transparency.

---

<sup>3</sup> Contemporaneously, the media had reported substantial overspends in the overall MoD budget.

## 4.5 Knowledge and information

The information base was seen as needing to be accurate, reliable and verifiable. The lack of information was seen as major flaw in the CIOP. Whilst it was recognised that these were outline proposals, many participants felt that information they saw as basic, such as the approximate numbers of jobs involved, the size of the facilities proposed, the form of transport between sites, and an indication of the contamination and doses associated with each proposal, should have been provided. Others stated that full risk assessments and social and environmental assessments were required before the proposals could be judged.

### 4.5.1 Independent assessment

A very strong theme of responses was the need for independent expert assessment and review of the options and proposals, particularly regarding the implications for health, environment, social and ethical dimensions and local economy. This mirrors similar responses in relation to hazardous waste management generally. Public reassurance and public acceptability were seen as dependent on the availability of independent assessment in which people could feel confident.

Some respondents specified that national ENGOs (with relevant expertise) should be involved in such assessment, whilst others stated that independent could be translated as meaning experts who did not have any vested interest in the proposals; ENGOs were not excluded from this understanding of independence as their interest is in protection of the environment.

A distinction can be drawn between independent and counter or critical experts: independent experts being those, as above, who do not have a vested interest, and counter or critical experts being those who take on the more particular role of seeking to find flaws in particular propositions, and sometimes to propose alternative models of understanding or method. The use of critical experts, or at least the critical approach, is implicitly what many participants required, to counter what is seen as the over-confidence and commercial and political drivers shaping contractors' and MoD assessments, and in order that people are told 'what you don't want us to know'.

Good practice in the provision of independent expert assessment includes the need for preview as well as review (i.e. that independent expert assessment includes review of the research and study programme and methods, as well as of findings). Models such as 'joint fact finding' are available and could be utilised in this respect. Experience has demonstrated that the use of independent expert assessment can be constructive rather than destructive, and can generate a more robust information base in which people have more confidence.

### RECOMMENDATION 26

An independent panel should be established forthwith to preview and review, and in some cases conduct, assessments of options, sites and proposals, including technical, environmental, health, social, ethical and economic aspects. Such a panel should include at least one expert nominated by ENGOs, and should approach its task critically and constructively.

### 4.5.2 Scope of assessment

Ethical, social and local issues were highly visible in responses to the CIOP, and participants were affronted that these did not appear to have been considered. It is clearly necessary to conduct detailed assessments of these dimensions in order to be able to produce a more acceptable proposal, and to be able to present information on them in an accessible way to enable transparency.

Particular aspects emphasised were

- the impact and conflict with other economic activity, development, potential and aspirations in an area,
- the importance of local values in relation to what is important about a particular area
- the criteria by which sites were selected (driven by those identified in consultation) and the process by which potential sites were identified
- the identification of detrimental effects as well as any beneficial effects, and identification of potential compensation and community benefits
- health and environmental impacts
- fairness and equity.

Best practicable environmental option (BPEO) assessments are currently required practice, as are Environmental Impact Assessments (EIAs) and these are (at least in part) amenable to being extended to pay greater attention to ethical, social and economic issues, as these can be included as attributes. This would provide a structured framework in which to assess, justify and demonstrate the balancing of this wider range of issues which participants have identified as being necessary components of assessment (see also Section 9.2 The decision process), and to provide structured information on these

### RECOMMENDATION 27

Information provided should include assessments of ethical, social and local issues, as well as technical and economic aspects. Such assessments could potentially be conducted in the form of extended BPEO and/or EIA studies (see also Recommendation 5).

### 4.5.3 Monitoring

The details of an acceptable monitoring regime were not discussed to the extent of the FEC, but it was clear that the location and movement of radionuclides discharged to the environment remained of high concern, and that infrequent monitoring was not acceptable. Local oversight was raised as a necessary component of an acceptable proposal.

### RECOMMENDATION 28

Detailed monitoring regimes should be agreed with local consultative committees as part of an acceptable proposal.

#### **4.5.4 Oh it's all impossible**

The intractable nature of the problem of radioactive waste management, for example in the difficulties of making choices between storage at the safest site and minimisation of transport, were clearly identified (see also Section 7.12 The problem of siting intact RCs storage). People want a permanent solution for radioactive waste – one which removes risk and responsibility from future generations. This is not available, and hence there are many ethically and technically difficult judgements to be made to arrive at what might be the 'best option'. This can be disempowering, and people tend to focus on particular elements of the problem and establish some baseline parameters; people also want expert assessment to be carried out to contribute to making the necessary choices, and are content to for experts to carry this responsibility, so long as they have confidence in those experts.

That radioactive waste management is seen as a complex and difficult, possibly irresolvable, problem by many participants (albeit for generally different reasons than those perceived by the industry and Government bodies), gives grounds for optimism that a shared understanding of the problem and its difficulties could be achieved, and that this could then provide the basis for an agreed way forward.

#### **RECOMMENDATION 29**

Given the understanding of radioactive waste management as complex and problematic, and the differences between perspectives as to the nature of these problems, difficulties and problems should be openly addressed and discussed, and collective solutions sought.

#### **4.6 No new build**

Many respondents stated that it was irresponsible to build further nuclear submarines when effective disposal of existing radioactive wastes was not available. Some respondents emphasised that nuclear submarines are designed to support the nuclear weapons programme, and they were opposed to the continuance of this programme in any case. Others stated that they saw nuclear submarines as expensive and unnecessary, and that there was no good reason to continue to commit resources to further production. Others highlighted the detriment the nuclear submarine programme has brought to those communities who live with the existing submarines, and saw no justification for this to be continued.

The point that, if submarines continue to be built, any waste management or storage facility has an effectively indefinite lifetime as new submarines reach the end of their lives and require decommissioning, was of great concern to many. Dealing with the existing waste was seen as one thing; to write a blank cheque in relation to any further production quite another. This is emphasised by the partial acceptance of continued storage at Rosyth and Plymouth, but the emphatic rejection of importing any further submarines to these sites, and by the strongly expressed fear that any site using for the submarine waste would attract other waste, and other submarines.

It is clear that ceasing production of waste is emerging as a condition of the acceptability of waste disposal, in relation to the submarines and in relation to nuclear activity more generally (with the possible exception of medical and research wastes). It is hard to see how any community will accept more than a fixed and specified amount of waste, given the concerns expressed in this consultation.

### **RECOMMENDATION 30**

No new nuclear submarines should be ordered or commissioned until a final disposal route for radioactive wastes exists. The current nuclear submarine programme should be reviewed.

That submarines were built and continue to be built without a waste management option having been agreed is widely seen as unacceptable. It was repeatedly stated that any new submarines should have waste management built in, in order to enable decommissioning that was safer and more practicable.

### **RECOMMENDATION 31**

Any new nuclear submarines should have waste management built in, using the best available technology to minimise doses, discharges and risks when decommissioning takes place.

## **5 The Options**

### **5.1 Best possible practice**

The requirement for the management of the submarines to be the best possible, rather than the cheapest that meets existing regulatory requirements, was explicitly and implicitly stated throughout the CIOP.

Getting value for money was seen as determining the best option and means of implementation, and then inviting contractors to offer prices against a specification for this option, rather than selecting a cheaper option.

Participants clearly saw a need for the best available technology and for discharges, doses and risks to be as low as possible. Cost was emphatically not seen as providing a constraint on this. Regulatory standards were seen as the minimum requirement to be met; contractors were expected to be achieving 'compliance plus'. Minimisation of risk, discharges, doses (and transport) was a fundamental component of acceptability (see section 4.2.2 Health).

Even given best possible means, however, most participants thought that storage of the RC intact would be preferable to cut up in terms of discharges, doses, and risks.

### **RECOMMENDATION 32**

Best possible means and the best available technology should be used to minimise doses, discharges and risks.

## 5.2 Continued storage afloat

Several respondents suggested continued storage afloat (the ‘do nothing’ option) as the best way forward, until such a time as a national repository is available or until the national waste management strategy is determined and agreed, in order that the submarine wastes can be managed in a fashion that is integrated with this. Issues involved in continued afloat storage, such as the understanding that any accident or emission would be more problematic and difficult to remediate in water, were not presented or discussed, although there was a general view that the submarines should be removed from afloat storage.

The suggestion of continued storage afloat seems to arise from contemplation of the impacts of the various proposals. It highlights the major contrast between consideration of the management of the radioactive wastes in the ‘abstract’ – i.e. without sites or proposals being considered – as was the case in the FEC, and consideration of the ‘real’ implications of proposals. When confronted with having to identify a site – whether one’s own or someone else’s – where the waste can be stored, and facing the difficulties of this, continued storage afloat reappears as a possible resolution of the problem.

### RECOMMENDATION 33

Any assessment of the options and proposals should include consideration of continued interim storage afloat. Adopting an alternative option to afloat storage requires the clear and acceptable demonstration that the alternative option and its siting is preferable, taking environmental, social and ethical considerations into account, and in relation to the development of the national radioactive waste management strategy.

## 5.3 RC intact

Storage of intact RCs was overwhelmingly the preferred option, and seen to be considerably more acceptable than cut up of the RCs.

A major rationale for this was that there is no need, at present, to do more than cut out the RCs and store them on land, and that to do more would involve greater worker doses and discharges to the environment, and could either make compliance with a national waste strategy more difficult, or pre-determine what a national strategy can involve. Storage of intact RCs was seen as the simplest, most straightforward and most sensible interim measure, and one that did not disperse radioactivity in the environment to be a burden for future generations (see section 4.3.6 Intergenerational equity) but allowed radioactivity to decay, making any eventual cut up less risky.

Most respondents assumed that to cut up the RCs would inevitably involve higher doses to workers and greater discharges to the environment than storage of the intact RCs. However, some respondents argued that insufficient information had been put in the public domain to assess whether it was practicable to cut up the RCs in the immediate future without additional exposure to workers and discharges to the environment.

Some participants considered that, as the RCs should be stored intact, and transport should be minimised, the RCs from the submarines currently in afloat storage at Rosyth and Plymouth should be stored at those sites. Notably, these participants lived in the vicinity of these sites.

A minority of participants considered that the RC should be cut up and packaged as soon as possible. Some of these were confident in the abilities of the nuclear industry to manage this safely, and did not see the process as problematic; largely these were people who lived in the area of the site, and also saw potential employment benefits. Others argued the point of principle that this generation has a responsibility to undertake whatever action is necessary as soon as possible, rather than leaving this to future generations.

A larger, but still relatively small, number of participants began with a preference for intact RC storage, but when confronted with the difficulties of siting and transport, gave further consideration to the possibility of early cut-up. Some of these concluded that RC storage was definitely the better option, and a site must be found, whilst others reserved judgement until more detailed information was available.

The choice of generic option is clearly closely implicated with concerns about safety, worker doses, discharges, risks, accidents, and environmental and human health. The high value of these aspects underlies the overwhelming preference for intact RC storage.

### **RECOMMENDATION 34**

RCs are stored intact for an extended period. Cutting up of RCs should only be countenanced as an option if it can be clearly demonstrated and agreed that there will be no additional exposure to workers or discharges to the environment or other risks above those involved in intact storage of the RCs, or if there are overwhelming and publicly accepted reasons for early cut up.

### **RECOMMENDATION 35**

Until cutting up can be achieved in compliance with Recommendation 34, RCs are stored intact on land.

## **5.4 The Ardyne Point option (but not at Ardyne Point)**

There was a general preference for the proposal put forward by McAlpine, and withdrawn early in the consultation period, although Ardyne Point was not seen to be a suitable site due to it not being a nuclear site, and its unspoilt surroundings.

That is, the proposal to tow all the submarines to one site, cut out the RCs there, and store them there (until such a time as a national waste strategy is implemented and they can be moved to a final storage or disposal site), was considered more acceptable than the other proposals, as it was seen to minimise transport and concentrate the waste and associated activities. It should be noted that the McAlpine proposal most strongly reflected the FEC recommendations. Although this preference was not universal (see e.g. Section 7.7 One site or several?), it was substantial, and it appears that if a suitable site could be found, this option would be the most acceptable (see Section 7.12 The problem of siting intact RCs storage).

### **RECOMMENDATION 36**

The option of taking submarines to one site, cutting out the RCs there, and storing the RCs intact at that site, should be pursued.

## 5.5 Cutting up RCs and storage of packaged waste

The option to cut up the RCs and store packaged waste was preferred by a minority

The differences in options for cutting up the RCs and packaging wastes received relatively little detailed attention, as they were generally rejected wholesale in preference for storage of intact RCs, and because there were no answers available to the questions people asked (because proposals were only outline) in order to be able to more thoroughly consider the options (such as the differences in worker doses, the relative transport risks, etc). However, observations can be derived from what was said more generally, and from those who did comment on the different options.

### 5.5.1 Cut up of RCs including RPV

This option has little support, other than by some in Rosyth, which would experience the benefits of development of facilities and employment, whilst not (in the proposals presented), carrying the longer term burden of waste storage, and by a small minority of people who thought waste should be packaged as far as possible as early as possible to avoid leaving such duties to future generations.

The majority considered that there was no benefit in cutting up and packaging now, particularly in the absence of a national strategy: this option was seen to be overly dependent on the assumption that a national repository for packaged waste would be forthcoming, whereas that decision has not been made, and as non-compliant with the FEC Recommendations.

The justification provided by contractors for earlier cut up that the skills may not be available in the future and the technology is available now, and by the MoD that a disposal route for LLW is available now, was not accepted, and the majority of participants commenting were not persuaded by the arguments for cutting up the RCs and packaging the wastes, as against storage of intact RCs.

### 5.5.2 Cut up of RCs excluding RPV

The cut up and packaging of the less radioactive components of the RC, whilst leaving the Reactor Pressure Vessel intact, was given little attention as a specific option. Where it was discussed, a preference for keeping the RPV intact if the RC was cut up was generally expressed, though this was usually in tandem with the statement that the RC should be stored intact. Given the general preference for intact storage, safety, risk minimisation, and minimisation of worker dose, it would appear that it would be more acceptable not to cut up the RPV if cutting up of the RC took place.

## 5.6 Proven or unproven technology?

People were concerned that a RC had not been cut up before, and thus that any proposal involving cutting up the RC therefore utilised unproven methods and technology. Contractors and others considered that the technology required exists and has been used in similar circumstances, and thus that the technology is proven. A common response to this was that, although there may be experience and technology in similar areas, a RC, specifically, had not been cut up before, and there would inevitably be areas of difference. Whether the technology is proven or not is thus a matter of perspective

Similarly, participants raised concerns as to whether the RCs were sufficiently similar to use the same process on each, whilst contractors implied that what was proposed was a ‘one size fits all’ solution.

The suggestion was made that one RC might be cut up now as research, in order to test the viability of this. This possibility was also explicitly resisted by some participants.

### **RECOMMENDATION 37**

Any decision to cut up the RC needs to demonstrate that the technology is tested and proven, and either applicable to all the submarines, or variations demonstrably taken into account.

## **6 The Proposals**

Overall, as they stand, none of the proposals were acceptable to the vast majority of participants. Objections were made on a number of grounds:

- Proposals involved cutting up, rather than cutting out RCs
- Proposals had not been adequately thought through
- Insufficient information was available to make a judgement
- Sites were unacceptable
- Transport was not minimised
- FEC recommendations had not been complied with
- No independent assessment was available
- Proposals did not demonstrate coherence with a developing national strategy, or the flexibility to respond to any other strategy than a centralised national repository utilising Nirex packaging requirements designed for permanent underground storage
- Proposals are driven by commercial interests rather than seeking the best option and site, and are not driven by the MoD.

A small minority of participants stated that one or all of the proposals were acceptable, generally on the grounds that they had confidence in the abilities of the nuclear industry or that the proposal brought employment to their area (Rosyth, Sellafield).

The proposals were seen by many participants as unnecessarily complex and undertaking unnecessary work, particularly in the early cut up of the RCs when this was not seen to be necessary. In turn this was seen as resulting from the commercial process and the desire of contractors to make the proposals as expensive as possible.

Many participants refused to engage in detail with the proposals, as they considered that they were being positioned by the CIOP to ‘select’ one of these, and they believed none were acceptable, and that the process of inviting proposals from industry was fundamentally flawed.

Participants strongly recommended that the MoD ‘return to the drawing board’ and produce an assessment and justification of an option and of site selection criteria.

### **RECOMMENDATION 38**

As none of the current proposals are acceptable, other ways forward will have to be found. The MoD should seek to specify the best option and site against agreed selection criteria, and pursue development of this (see also Recommendation 49).

Proposals were considered to be more acceptable (if not fully acceptable) under the following conditions:

#### **Babcock - Mowlem Nuclear Services (MNS<sup>4</sup>)**

This proposal is more acceptable if

- Waste is not stored at Coulport
- No submarines beyond the existing 7 are brought to Rosyth
- Any waste storage at Sellafield is accompanied by community benefit which at least balances the community disbenefit

Cutting up and packaging now, rather than storing the RCs intact, is generally unacceptable.

#### **BNFL**

This proposal is more acceptable if

- Any waste storage at Sellafield is accompanied by community benefit which at least balances the community disbenefit
- Cutting up of RCs does not take place at Devonport or Rosyth

Cutting up and packaging now, rather than storing the RCs intact, is generally unacceptable. Keeping the RPV intact is, however, more acceptable than cutting it up.

#### **DML**

This proposal is more acceptable if

- Community benefit and the bulk of employment is provided at Dounreay, including the cut up of the submarines
- The RCs are stored for an extended period before being cut up and packaged
- The RCs are removed when the Dounreay site is cleared

#### **SERCO Assurance, Parsons Brinckerhoff Ltd and RWE Nukem Ltd**

This proposal is more acceptable if

- Sites are identified and are acceptable
- RCs are stored for an extended period before being cut up and packaged

---

<sup>4</sup> Motherwell Bridge Nuclear (MBN) became Mowlem Nuclear Services (MNS) during the consultation period.

Elements of existing proposals could, therefore, potentially be developed to achieve an acceptable solution, but this would have to incorporate other elements of acceptability identified elsewhere in this report (see Section 10 Acceptability and unacceptability).

## 7 The Sites

This report does not seek to identify which of the sites named in this phase of consultation might be most, or least, accepting of their role in the outline proposals. A number of comments accused the CIOP of being a means to identify the sites with ‘least resistance’ or those which were ‘softest’ and where it would be easiest for an external agency to impose developments. The authors of this report do not believe that it is appropriate to consider the sites in this way or to use consultation for this purpose.

Rather, the consultation sought to identify those factors and conditions which are likely to affect the acceptability and unacceptability of the proposals. To this end, such factors and conditions are identified generically rather than specifically.

That said, the particular characteristics of the named sites are of course relevant, and illuminate the more generic factors. There were differences in the issues raised, and between sites where virtually all responses gave an outright rejection and where some responses expressed a degree of conditional acceptability. These are reflected below.

### 7.1 Site specific focus of responses

The majority of responses, especially those received via the website, by post, and at local open access events, concerned specific sites. Sites were generally considered in terms of their general area – proposals for Sellafield, for example, were very much seen in relation to West Cumbria as a whole.

Again, this indicates a difference in perspective between local residents and contractors. Local residents consider a site as part of a local area; contractors appeared to consider sites primarily as specific locations. For better communication to develop, it is essential that the MoD and contractors develop a better understanding of what sites mean to local communities, what is important to local people, and how their proposals impact on and integrate with the local area (see also 4.3.8: Value of place).

### RECOMMENDATION 39

Sites should be assessed in relation to their meaning and value for the local community and the local area. Local values should be part of the assessment of the viability of a site.

### 7.2 Announcement of the seven sites and location of proposed facilities

The MoD press release announcing the consultation and outlining the five proposals, and the sites involved, did not name Nigg or Dounreay. Rather, an unidentified site on Cromarty Firth was named, and the DML proposal mentioned a further site for

waste storage. Nigg was then announced via a press release and Dounreay through a letter to the local MP. Further, the inclusion of Dounreay did not specify whether this involved the MoD's Vulcan site (adjacent to Dounreay and rented from the UKAEA)<sup>5</sup>, the Dounreay site itself, or adjacent land owned by the UKAEA (and if so, where), and this was not formally announced, despite repeated requests for clarification. At most sites, people asked exactly where facilities would be located, and whilst this information was available at least in outline for Rosyth and Devonport, it was not available for Coulport, Dounreay or Sellafield.

This gave rise to both confusion and ill-feeling; for some, the questions of why this delay in naming sites had arisen, and why confusion continued regarding the exact location of the Dounreay site and facilities at other sites, was interpreted as indicating that behind the scenes, non-transparent, closed meetings and negotiations were taking place. This undermined the consultation's claims to be a genuine manifestation of openness and transparency, and generated suspicion of the motivations of the MoD, contractors, and to a lesser extent, Lancaster University.

Not all the proposals named all the sites they were considering. Some respondents saw this as meaning they could not assess the proposals fully, some as meaning that 'secret sites' were being considered, and some as reasonable at this stage and meaning that site selection could be responsive to consultation outcomes. General criticism that the proposals could not be assessed or compared properly due to the absence some sites was present throughout the consultation.

Transparency implies the need for clarity, and given the central significance of the sites for most participants, clarity regarding sites is a prerequisite in any phase of consultation.

The Minister for Defence Procurement has already stated that further possible sites may emerge, and that if so, full consultation will take place with respect to those sites.

## **RECOMMENDATION 40**

Wherever possible, sites should be identified clearly, and all sites should be announced at the start of consultation.

### **7.3 Dominance of Scottish sites**

That 5 of the original 7 sites, and 3 of the surviving 5, were in Scotland did not go without comment. Scots clearly believed that their independence should be respected, and frequently saw the siting of waste in Scotland as England 'dumping' its waste, which was strongly resisted. The beautiful, clean and unspoilt environment was clearly valued highly, and radioactive waste was seen as despoliation.

The award of the submarine refuelling contract to Devonport rather than Rosyth engendered a considerable response along the lines of 'they've had the work, let them keep the waste'. When confronted with the point that residents in Plymouth were expressing opposition to having the wastes – and the Dockyard – discussions

---

<sup>5</sup> The MoD state that the site under consideration is land owned by the UKAEA and adjacent to the Vulcan site, but is not currently used for nuclear work.

generally turned towards a more abstract consideration of siting criteria, which included the recognition that no community would want to accept the waste, that this was reasonable, and thus that the ‘best’ sites should be located, and compensation offered to local communities, and that local communities should have a right of refusal.

That Scotland was seen as suitable because of its areas of relatively low population density was resisted strongly. That some respondents had referred to Scotland as ‘remote’ in the FEC was considered offensive: London, it was pointed out, is rather remote from Inverness.

Decision making was seen to require close involvement of the relevant Scottish authorities, including the Scottish Executive and SEPA (see Recommendation 1).

## **7.4 Responses in relation to each site**

### **7.4.1 Ardyne Point**

Ardyne Point, though it was withdrawn early in the consultation period, nonetheless elicited a brief but powerful response from local residents and elected representatives concerned at what was obviously felt to be an unacceptable intrusion into an area of peace and beauty.

### **7.4.2 Coulport**

Opposition was perhaps strongest in relation to this site than any other, particularly if local population density is taken into account; a petition with 2144 signatures registering objection to the proposal to store radioactive waste at Coulport was received. Reasons why the site should not be used included its proximity to the Loch Lomond and Trossachs National Park and the beauty of the area, development of tourism in the area, the existing burden from nuclear submarines, and the aspiration for the area to be freed from this in the future. Argyll and Bute Council expressed rejection of the proposal.

### **7.4.3 Devonport**

The Devonport response was emphatic that the management and storage of nuclear waste should not take place within a city, in close proximity to housing, schools and hospitals. There was also some support for the use of the Dockyard to cut out the RCs, and some for storage of the RCs from the existing submarines at Plymouth. The response to CIOP was very much framed in relation to the ongoing relationship with the Dockyard, and the wider concerns expressed in relation to these. It was clear that the CIOP offered the opportunity for local concern regarding the Dockyard more generally to be voiced. Plymouth City Council expressed concern regarding the proposal.

### **7.4.4 Dounreay**

Rejection of the Dounreay site was largely linked to the decommissioning of the UKAEA facilities and aspirations to return the site to a green field, and to the lack of local benefit from accepting the waste. The Highland Council expressed its rejection of proposals to use Dounreay and Nigg, and of any proposal which involved importing radioactive waste into the Highlands.

### **7.4.5 Nigg**

Residents in the Cromarty Firth area raised concerns about impacts on the natural environment and conflicts with alternative developments in the area.

### **7.4.6 Rosyth**

Response at Rosyth was mixed, with some acceptance of the storage of cut out RCs from the submarines currently at Rosyth, and of the employment benefit. Any import of further submarines to Rosyth was considered unacceptable by many participants. Fife Council as such did not express a view on the proposals, though local politicians expressed concerns.

### **7.4.7 Sellafield**

Concerns at Sellafield centred on rejecting the presumption that the local community would accept additional radioactive waste storage. The disbenefits of the existing industry were stressed, and it was affirmed that no proposal would be acceptable unless accompanied by substantial community benefit, and perhaps not even then. Copeland District Council expressed rejection of proposals as they stood.

## **7.5 Decommissioning and aspirations for the future**

It was clear from participants that the advent of the LMU/NDA and the decommissioning of the Magnox nuclear power stations and the UKAEA Dounreay site, and others, has given rise to a generalised perception amongst participants that existing nuclear sites will be cleared and returned to green field sites over the next few decades. Acceptance of the submarine wastes appeared to work against this for participants by shifting the focus to longer term radioactive waste storage at a site, with the possibility of attracting other wastes and even the final repository. There was little or no recognition that existing nuclear sites will not be cleared until a new facility is available to receive the wastes, and that if a new facility is available, the submarine wastes can also be moved there, and that the MoD intend to liaise with the LMU to this effect.

At Dounreay, particularly, but also at other sites, the fact that current or anticipated plans were to clean up the site and return it to green field status meant that any import of radioactive waste to that site was seen as nonsensical, and contravening the aspiration to remove the nuclear legacy from that area. However, some participants were also concerned regarding the job losses associated with decommissioning, and valued the potential employment offered.

As described above, people's value of place and aspirations for the future did not generally include radioactive waste facilities (see 4.2.1 Adverse effects and Compensation), and although people at Sellafield and Dounreay are clearly sensitive to their economic dependency on the nuclear industry, radioactive waste storage, in particular, is not generally seen as providing any substantial employment benefits. The fear that a community would be 'left with the waste' was strongly expressed.

## **RECOMMENDATION 41**

Any proposal for interim storage at a decommissioning nuclear site should be accompanied by guarantees that the waste will be removed when the site is cleared.

## 7.6 Sites with existing nuclear activity

Overall, consultation respondents emphasised the preference to use sites with existing nuclear activity, to prevent contamination of further sites and to utilise the existing skills base. In the absence of this, a site contaminated by other toxics was preferred. An existing nuclear site is clearly more acceptable than one without existing nuclear activity.

However, respondents from sites with existing nuclear activity commonly stressed that any addition to their risk burden was unacceptable, and there was clearly a sense that participants more widely felt it was unfair to ‘dump’ further waste on already burdened communities. This disbenefit was seen to be something that required addressing (see 4.2.1 Adverse effects and Compensation. Some respondents suggested, in relation to particular sites, that the submarine wastes would be more acceptable if other nuclear activity at that site was reduced, so that the overall risk burden was lessened.

### RECOMMENDATION 42

Sites should be sought where there is existing nuclear activity (or other contamination), and where existing nuclear activity can be reduced so that the total risk burden is lessened.

## 7.7 One site or several?

Most respondents appeared to assume that one storage site was being considered, and did not address the possibility of using more than one site. Some Rosyth and Plymouth respondents stated that the possibility of using those two sites for the submarines currently stored there, but were unwilling to accept any further submarines. Some respondents stated that the risks and the burden should be shared between sites, whilst others argued that centralisation on one site was preferable. Certainly, no proliferation of sites was acceptable.

Whilst there was a widespread preference for the option of cutting out the RCs and storing them at the same site (see 5.4 The Ardyne Point option (but not at Ardyne Point)), the idea of using more than one site for storage was also seen as distinct possibility by many of those who considered it. Should the possibility of using multiple sites be justifiable, it should not be discounted.

### RECOMMENDATION 43

The possibility of using more than one site for cut out and/or waste storage should continue to be considered.

## 7.8 Devonport and Rosyth

Strong arguments were put forward that, in line with the environmental groups’ policy of storage at the site of production, RCs from the submarines currently stored at Devonport and Rosyth should be cut out and stored at Devonport and Rosyth. This was seen as the least worst option as it avoided transport and avoided the unfairness of imposing the wastes on another community, and as potentially the safest option as the least activity and transport would have to be undertaken to get the submarines out of the water and stored on land. However, local residents at both sites also resisted the

idea of storage at those sites, and of any activity which produced discharges or increased risks, pointing particularly to their locations in and close to centres of population.

At both sites, import or acceptance of any further submarines/components was largely seen as something to be resisted, and the resistance to importing radioactive wastes at all sites suggests that whilst it might be acceptable for the existing decommissioned submarine RCs to be stored at Plymouth and Rosyth, if this is shown to be safer than alternatives, storing the remainder of the submarines' RCs at Plymouth would not be acceptable. This, of course, is problematic in that the intention is to defuel the remainder of the fleet at Plymouth as the submarines are decommissioning, and the only facilities extant to do this (in the UK) are at Devonport; this was not explicitly considered by those participants arguing for storage at the current sites. A further probably more acceptable way forward is continued storage of the RCs at Rosyth there, and removal of the Plymouth RCs to a storage site.

Others saw the necessary expertise and experience existing at these two sites, and considered them therefore to be the appropriate sites for any cutting out or up, although storage remained problematic.

#### **RECOMMENDATION 44**

Cut out and storage of the RCs from the submarines currently at Rosyth and Devonport, and storage at those sites, should continue to be considered, but would require a clear and accepted justification demonstrating why it is preferable to be acceptable. A further site should be sought for the storage of RCs from submarines decommissioned in the future.

### **7.9 United States and London**

The United States was consistently proposed on the grounds that

- there is space there,
- they have a repository for RCs, and
- the radioactive waste would be a fair exchange for the 'assistance' provided to the US in Iraq by the UK, and the arrival of the 'toxic ships' at Hartlepool

The US have already been asked for, and declined, use of their site for the UK submarine waste.

London and the south east were popular suggestions, as in the FEC, on the grounds that

- it would demonstrate confidence in the safety of a proposal,
- that it is fair, as it more densely populated than most other parts of the UK, and therefore most of the 'benefits' have accrued there,
- proximity to the government and large populations would encourage high safety standards.

However, most if not all of the comments identifying London/south east were made with a sense of irony, or at least a sense that such suggestions would not be taken seriously, and/or were superseded in discussion by a preference for storage in an area of low population.

The existence of the London Clay belts, identified in the 1980s as potentially geologically suitable for deep underground disposal, was also sometimes assumed to mean the area was geologically more suitable for any form of waste disposal (an assumption that the optimum geological conditions are the same for a deep underground repository and surface storage was implied on a number of occasions during the consultation; this confusion needs to be addressed in further information provision).

This reasoning suggests, amongst other things, the importance of a sense of fairness particularly in relation to the location of wastes (see also Section 4.3.7 Equity and fairness). It also demonstrates that greater clarity is needed regarding the form of storage, the significance of geology for that storage, and in distinguishing surface and underground storage.

## 7.10 Use of existing sites

Existing sites with nuclear or possibly other contaminating industry are more acceptable than new sites. The strength of opposition around the two ‘virgin’ sites (Ardyne Point and Nigg) underlines this.

However, expectations of clean up at decommissioning sites conflicts with the preference for using existing sites, although Recommendation 6 should make the use of existing sites more acceptable.

When confronted with the difficulty of identifying appropriate sites, particularly for RC storage, the requirement to find a site in order that the option could be pursued generally overrode the limitation on sites to existing nuclear sites, and sites with contaminated land from other industrial activity were also identified as potentially acceptable. Clean up of historic contamination, both in order to use the site, and to eventually decommission the site, would add to the acceptability of using a non-nuclear site (see Recommendation 42).

## 7.11 General siting criteria

A number of criteria which make sites more or less acceptable were generally supported in the CIOP:

- Sites for the management and storage of radioactive waste should not be in or near centres of population
- The storage of radioactive waste should not conflict with other industry and development in the area.
- Community benefit and compensation should be provided.
- Sites for the management and storage of radioactive waste should not be in area of high natural beauty or environmental value
- Sites should already be contaminated; preferably, existing nuclear sites should be used.
- Local communities must consent to accept the waste.
- Sites should be selected as being the best available, rather than because they are commercially attractive.

In relation to the last point, it is worth noting that the sites proposed in the outline proposals were proposed by contractors, and these were widely interpreted as meaning that site selection was being driven by commercial considerations, for example, that contractors' would propose their own sites rather than the best site.

## **RECOMMENDATION 45**

The MoD should derive, establish and publish site selection criteria, incorporating consultation responses and technical and other studies, and using a consultative process which confirms that these criteria are broadly in line with what is considered publicly acceptable. These criteria should then be used to identify and select sites, and the process and rationale of that identification and selection be made public and accessible.

### **7.12 The problem of siting intact RCs storage**

The difficulty with pursuing a single site for cut out of the RCs and subsequent intact storage is that of finding a suitable site. A site would have to have sea access, and a disused dockyard and associated storage space, as well as meeting other siting criteria

It is clear from consultation responses that storage of the intact RC, with minimisation of transport, is the preferred option. However, this requires either that RCs are stored at or near Rosyth and Plymouth, which conflicts with the lack of acceptability of storage in or near centres of population. Even those who considered that storage of the existing RCs at these sites was the 'least worst' option were unwilling to accept the RCs from the submarines that will be decommissioned in the future (see also Section 7.8 Devonport and Rosyth).

If the minimisation of transport is balanced against risks to population and other factors, it may be that this condition can be waived under the condition that transport follows best practice to ensure high standards of safety. Transport by sea is generally more acceptable.

Storage of intact RCs involves a considerable amount of space, and a site with easy access by sea to enable transport and minimise transport risks. For the submarine to be dismantled at the storage site means that docks are also required. Other siting criteria, such as the acceptance of the local community, and not being within or adjacent to areas of high natural beauty, also apply. Participants implied that such a site must exist, and must be available to the MoD. Decommissioning nuclear power stations were seen as potential sites (see also Section 7.6 Sites with existing nuclear activity) as were disused dockyards in areas of contaminated land, although use of such sites was seen as problematic in terms of environmental justice (see also Section 4.3.7 Equity and fairness). Compensation and community benefit may go some way resolving this problem, as does the suggestion made that proposals should include returning the site to greenfield status after the interim storage period is over, and thus providing benefit in terms of cleaning up a currently contaminated site.

The preference for RC storage intact remains premised, however, on the availability of a site. To date, no such site has been identified, and it is possible that no site that meets the various criteria will be found. The CIOP offered little guidance on what would be acceptable in these circumstances, as respondents seemed convinced that the MoD would be able to find a suitable site or sites. However, it was clear from the deliberations of those who had more time to consider the problem of siting that some

trade-off, as indicated above, between the minimisation of transport, and in relation to the distance from population centres, might be acceptable if high standards of safety are demonstrated, in order to enable the option of intact RC storage to be pursued.

The potential difficulties of siting packaged waste should not be underestimated. Whilst sites are not restricted to those with sea access, the sites identified for packaged waste storage (Coulport, Sellafield) expressed considerable resistance to the idea. The high value that place has for people, and the fact that this is severely threatened by radioactive waste, mean that whatever the form of the waste, it will be an important issue for people. Any site being considered will clearly have to be able to meet the recommendations herein to be able to be acceptable. It remains paramount that the 'best site for the best option' is recognised as being the most acceptable way forward, and that justification of any proposals will need to demonstrate this.

## **RECOMMENDATION 46**

The MoD should conduct a full and open identification and review of potential sites for RC storage (any of which will require access by water), including MoD sites, civil nuclear sites, dockyards contaminated by radioactive or other toxic wastes (such sites are likely to be more acceptable if clean-up is included in the proposal), and other brown field sites (particularly those with contaminated land) away from centres of population.

## **8 Consultation**

The CIOP did not direct participants' attention towards commenting on the consultation itself (unlike the FEC), but a number of themes were nonetheless raised.

The consultation was widely welcomed, and even those who criticised particular events in detail nonetheless did so on the basis that consultation was welcome and valuable, and that therefore it should be conducted properly.

Assertions that the decision on the management of the submarines had already been made and that the consultation was a sham were present throughout the consultation, though greatly outweighed by those who thought the consultation was worthwhile. However, those who thought this maintained reservations about the extent to which MoD would take account of outcomes. The apparent lack of incorporation of the FEC recommendations in the proposals raised questions about whether the contractors (as distinct from the MoD) would take any notice of outcomes. Participants clearly felt the worth of their participation was dependent on the effectiveness of the consultation in terms of influencing MoD decision making, but it was much appreciated that the MoD were, at the least 'trying to do the right thing'. The MoD have repeatedly stated they have not yet made a decision.

There was some sense that the consultation was inappropriately timed, as the outline proposals had insufficient detail to allow full assessment. However, it was also asserted that consultation should have taken place earlier, and the opportunity to reject the outline proposals at this stage was clearly welcomed.

Contractors were generally felt to be paying insufficient attention to the consultation, which was considered to reflect their lack of genuine willingness to be open and to engage with the public.

It was repeatedly pointed out that not everyone had access to the website, and the point that printed materials were also available did not seem to have been satisfactorily communicated.

The amount and type of publicity given to the CIOP was again criticised, and the suggestion made that house to house leafleting should have been conducted, particularly in Rosyth and Plymouth.

## **8.1 Accessibility of information**

It was clear, both from the responses received in relation to material provided and from direct comments, that the printed information and exhibition materials did not fulfil the requirements of accessibility, although the website appears to have been successful. (Accessibility includes considerations of being understandable different audiences, being available, assisting the user in getting a rapid grasp of the material, and being usable by those with disabilities). It was not made explicit that taped and large print versions of materials were available, and that responses could be submitted on tape, for example.

For information to be accessible, people also have to know it is available, and, as above, there was criticism of the extent to which the consultation had been publicised.

### **RECOMMENDATION 47**

The consultative elements of Project ISOLUS should be continued. Further consultation should address criticisms of the CIOP. In any further stages of consultation, more attention and more resourcing is provided for printed and exhibition materials to make these more accessible. The means of publicising any further consultation should be reviewed and extended.

## **9 The decisions**

### **9.1 The Front End Recommendations**

The FEC Recommendations were widely affirmed, and it was repeatedly pointed out that the contractors' proposals did not properly follow these recommendations, particularly in relation to the preference for intact RC storage, but also in relation to openness, public inclusion and communication, provision of information, and siting.

With respect to FEC Recommendations related to intact RC storage, these did not rule out cutting up the RC and packaging waste, as was sometimes claimed, but affirmed that this course of action would need to be justified and acceptable. The preference for intact RC storage was more strongly affirmed in relation to the existing proposals, and the reasons given for earlier cut up considered inadequate (see Section 5.3: RC intact). Regardless of some misquoting of the FEC Recommendations in this respect, it was clear that people generally felt that Recommendations arising from consultation should be respected.

### **RECOMMENDATION 48**

Greater attention should be drawn to and paid to the FEC and CIOP Recommendations in further stages of the ISOLUS Project, and explicit reference should be made to these in justifying the forward programme and decisions made.

## 9.2 The decision process

Safety, in terms of protection of human health and the environment, was clearly the fundamental parameter of any acceptable proposal. Inviting proposals from commercial contractors was considered to belie this, as contractors were seen to prioritise profit considerations, alongside proposing what was suitable to them (e.g. in terms of site ownership and access) rather than in the public interest. The commercial process itself was seen as inevitably not producing the best possible proposals in terms of the public interest, and hence the MoD were seen as necessarily the body to determine and specify options and sites.

The process that the MoD were undertaking, of inviting contractors to put forward outline proposals for the management and storage of the wastes, was broadly felt to be wrong, as it was seen to place too much responsibility for determining the strategy in the hands of commercial interests. The MoD's stated intention of inviting outline proposals in order to access the innovative capabilities, and sites, available to industry was seen to have failed, with proposals considered to be driven by contractors' interests and convenience, rather than the public interest, and no innovation considered to be visible.

Instead, it was felt that the MoD should undertake full, comprehensive, open, and independently verified assessment of options and potential sites, determine and specify the best option, and invite industry to then tender against the MoD's specification. This would be more acceptable, and demonstrate that MoD are in control of the project and the decisions, rather than industry.

### RECOMMENDATION 49

The MoD should now collate existing studies, and, utilising independent expert advice, identify any further studies needed. An assessment should then be undertaken to confirm or otherwise that storage of the intact RC is the best option on safety grounds as well as public acceptability grounds, again with independent input and review. The option should then be specified, and tenders invited against this specification. Further consultation on proposals should have this information available to it. (See also Recommendations 5, 7, 8, 11, 12, 15, 18,19, 20, 21, 22, 34, 35, 36, 37, 38, 39, 42, 43, 44, 45, 46, and 48)

## 9.3 The planning process

It was clearly the case that it would be more acceptable if any planning applications were dealt with as civil applications, and the MoD/contractors subjected to the same approvals as civil development projects. The MoD have already stated that this will be the case.

### RECOMMENDATION 50

The implementation of Project ISOLUS should take place through the civil planning process.

## 10 Acceptability and unacceptability

This section summarises key factors in the acceptability and unacceptability of the outline proposals, and of Project ISOLUS more generally.

Proposals are more acceptable if

- RCs are stored intact.
- Doses to workers and the public, discharges to the environment, and risks generally are minimised using the best means available.
- Full assessment of social, environmental and ethical, as well as technical and economic, dimensions takes place in an inclusive way, and is made available to the public and to consultation.
- Full scrutiny of processes and regulation is available.
- Storage and cut out take place at sites which are not adjacent to centres of population.
- What is valued by local communities with respect to a location is respected and taken into account.
- Local communities receive substantive and substantial benefit from hosting sites; employment benefits alone are inadequate.
- Local communities have given their consent to the operations.
- Siting decisions are clearly justified, and criteria for site selection are themselves acceptable.
- Transport is minimised, and transport risks are acceptable to the public and independent experts.
- Independent assessments and reviews are undertaken.
- Information provided is comprehensive and accessible.
- No new nuclear submarines are built, at least until a final disposal route for radioactive waste is available.
- A solid guarantee is given that no submarines will be imported from overseas.
- Clear, coherent and two-way discussion has taken place between the MoD, contractors and local communities, and acceptable methods established for the continuation of such discussion.
- Project ISOLUS is clearly and demonstrably working in tandem with other government bodies in relation to developing national waste management strategy, and wider government attention is given to addressing and resolving those Recommendations which fall outside the remit of the MoD.
- A clear rationale, and associated assessments, are provided and made accessible.
- A final ‘end point’ for the wastes has been decided.
- The MoD ‘takes charge’ of the decision process and identify and specify the best way forward, rather than inviting contractors to put forward proposals.

These dimensions, and the more detailed points associated with them that are made within this report, represent the ‘conditions of acceptability’ for any proposal. For Project ISOLUS to achieve its stated aim of finding a publicly acceptable solution to the problem of managing the radioactive (and other) wastes from the submarines, these conditions of acceptability must now be addressed.

## Appendix 1: Outcomes of the CIOP in relation to the FEC Recommendations

Isolus Front End Consultation Recommendations	MoD Responses	CIOP Comment
<p><b>1.</b> <i>Consultation findings, which fall outside the remit of Project ISOLUS, should be passed to the relevant bodies.</i></p>	<p><b>Accepted.</b> It is acknowledged that public consultation over the future storage of decommissioned nuclear submarines has raised a wide range of nuclear issues. Clearly there are issues that can, and will be considered as part of the ISOLUS project development, whilst others are wider reaching and are matters for other organisations. The findings of the consultation process are to be used to fully inform Ministers, and will also be passed on to other relevant areas within MOD. Other Government Department's, such as the Department for the Environment, Food and Rural Affairs (DEFRA), as well as public bodies such as the Nuclear Installations Inspectorate (NII) will also be informed.</p>	<p>This was affirmed, but greater challenge was afforded to what should rightly and wrongly be considered as 'inside the frame' and of relevance to Project ISOLUS. Particular issues raised were the relationship of ISOLUS with developing national radioactive waste management policy, and the need to stop producing further waste and especially stop building nuclear powered submarines. Whilst these clearly involve other bodies, they were also seen to be integral to ISOLUS.</p>
<p><b>2.</b> <i>The ways in which public concerns relate to the practices and motivations of other stakeholders need to be taken into account. Stakeholder practices should be developed in ways that demonstrably address public concerns.</i></p>	<p><b>Accepted.</b> MOD will use its best endeavours to address specific public concerns and provide a clear statement of exactly what action will be taken. Where this cannot be done, MOD will explain why a particular action or remedy, which has been identified, cannot be accommodated.</p>	<p>The original recommendation referred particularly to the relationship between concerns regarding technical, managerial and economic aspects and public acceptability. It has been re-emphasised in CIOP, particularly in relation to the widely held view that the outline proposals are driven primarily by commercial motivations rather than the public interest, as they have been produced by contractors.</p>

<b>Isolus Front End Consultation Recommendations</b>	<b>MoD Responses</b>	<b>CIOP Comment</b>
<p><b>3.</b> <i>The appropriate bodies should be informed of the strength of feeling against building further nuclear powered submarines, especially in relation to the absence of a final disposal route for the radioactive wastes</i></p>	<p><b>Accepted.</b> It is acknowledged that there is a view that no more nuclear submarines should be built, especially in light of the absence of a final disposal route. It is outside the remit of the ISOLUS project to determine the future programme for the procurement of new systems and platforms. However, as with the response to Recommendation 1, this view will be passed to Ministers, and those in the MOD involved with the future build. It is worth noting that the Strategic Defence Review (SDR) in 1998 – a uniquely open re-examination of Britain’s defence requirements - confirmed that nuclear powered submarines are a vital part of the UK’s defence, and any decisions to be made on the future procurement programme stand outside the remit of the ISOLUS project. In addition, Defence Minister Dr Moonie has recently stated, “I note that some consultees want an end to building nuclear submarines until we have a long term disposal solution. We are tackling the issue of disposal, but we cannot ignore the fact that nuclear powered submarines are a key component of our defence”.</p>	<p>The rejection of building new nuclear submarines was more strongly articulated in CIOP, and it was presented as a condition of acceptance of waste management facilities. The justification for this view was more acute than during the FEC, raising issues of the ongoing burden experienced by communities already hosting nuclear submarine facilities and their preference for this activity to cease.</p>
<p><b>4.</b> <i>Further action and decisions need to be clearly justified in terms of their ethical premises and principles, with cost being subsidiary to this.</i></p>	<p><b>Accepted.</b> The ISOLUS project is being developed under a strategy of openness and honesty with the public, in an effort to fully explore public opinion on ISOLUS related issues, as well as to develop a project that will achieve wide reaching public acceptability. Industry involvement in the requirement will need to embrace this same open attitude, and those companies that have expressed an interest in taking this project forward have been informed of the need to accept this approach. As part of its evaluations, the MOD will be looking for the best solution to fit the requirement. All factors will be taken into account, with safety key amongst them. Whilst costs to the taxpayer will also need to be a consideration, the safety aspects of the requirement will not be sacrificed in order to make the solution more affordable, nor will the requirement for openness be overlooked.</p>	<p>The CIOP identified a number of ethical concerns which arose when considering tangible proposals and sites. Participants emphasised the importance of factors such as fairness in the distribution of benefit and detriment, the right of local self determination, and the value of the environment. The importance of ethical considerations in assessing proposals was emphasised strongly. Cost was reaffirmed as secondary to other considerations.</p>

<b>Isolus Front End Consultation Recommendations</b>	<b>MoD Responses</b>	<b>CIOP Comment</b>
<p><b>5.</b> <i>Relevant bodies should be informed of the strength of feeling regarding the need for international collaboration, and public information on the collaboration, which is taking place, should be available.</i></p>	<p><b>Accepted.</b> The view of the public and stakeholders that radioactive waste is an international problem is acknowledged, but international agreements determine that nuclear waste must be returned to the country of origin for storage. As such, the future storage of the Royal Navy's decommissioned nuclear submarine fleet is a matter for the United Kingdom Government to resolve. The Department of Trade and Industry (DTI) does, however, co-ordinate UK policies and activities in this area and manages UK contributions to international assistance programmes while also maintaining bilateral efforts. The DTI is also responsible for managing a new three year £85 million programme of assistance to help tackle the wide range of nuclear safety and security problems faced by the states of the Former Soviet Union. The programme will include assistance in dealing with spent fuel and nuclear waste in NorthWest Russia.</p>	<p>This theme was not particularly visible during the CIOP, but it was affirmed where it did arise and not contradicted.</p>
<p><b>6.</b> <i>Project ISOLUS should establish and maintain relationships with government bodies involved in the development of radioactive waste policy, closely monitor the development of this policy and assess its relevance for Project ISOLUS.</i></p>	<p><b>Accepted.</b> It is crucial that cross-departmental consultation should take place between the MOD and other government departments, in order that emerging issues can be discussed openly, and changes to policy and legislation that may affect the project can be disseminated. These include the Department for the Environment, Food and Rural Affairs (DEFRA), the Environment Agency (EA), the Scottish Environmental Protection Agency (SEPA), the Food Standards Agency (FSA), The Scotland Office, The Scottish Executive, The Health and Safety Executive (HSE) including the Nuclear Installations Inspectorate (NII), and the Radioactive Waste Management Advisory Committee (RWMAC). MOD will retain close links with DEFRA on the formulation and implementation of its consultation strategy, for the management of radioactive waste.</p>	<p>The integration of Project ISOLUS with evolving national radioactive waste management policy and government strategy was a central theme in the CIOP, in part due to the developments and increasing rate of development which have occurred since the FEC.</p> <p>This recommendation was strongly affirmed, and expanded upon.</p>

<b>Isolus Front End Consultation Recommendations</b>	<b>MoD Responses</b>	<b>CIOP Comment</b>
<p><i>7. A clear statement on whether the BRDL proposal will proceed or not should be made at the earliest possibility.</i></p>	<p><b>Accepted.</b> It was announced in the House of Commons on 27 November 2001 by Under Secretary of State (USofS) for Defence, Dr Lewis Moonie, that the MOD has decided not to proceed with the proposal from Babcock Rosyth Defence Limited (BRDL) to dismantle the decommissioned nuclear-powered submarine, HMS Renown. Although BRDL's proposal was technically feasible, the regulatory approvals required by the company before authorisation for the dismantling could be given would not be available before early 2002. The MOD is currently in the process of inviting industry views on the ISOLUS requirement, and so any advantages that might be gained from dismantling Renown and using the knowledge for that work in exploring broader land storage options with industry, are not now realisable. HMS Renown will continue to be stored at Rosyth, and when final decisions have been reached on land storage, she will be treated in the same way as the other decommissioned submarines stored at Devonport and Rosyth.</p>	<p>It having been announced that the BRDL proposal would not proceed, this issue was not raised in the CIOP.</p> <p>The suggestion that one RC be cut up as a research project to identify whether it might be possible to cut up with sufficiently low risks to make this acceptable was made, and was also objected to.</p>
<p><i>8. Openness and trust should be pursued by the MOD.</i></p>	<p><b>Accepted.</b> The MOD remains committed to the full and open approach, which has been a feature of the ISOLUS project. It will continue this with further rounds of public consultation. It is the intention that when industry outline proposals have been received a further public consultation will be launched. This will lead to a short list of companies invited to enter into detailed negotiations. Following this, there will be further public consultation before any decisions are made on the most appropriate storage method and location(s). In addition, it is planned that a Project Consultation Steering Group (PCSG), whose primary role will be to oversee how the next phases of the consultation will be 12 amongst its membership.</p>	<p>The move towards openness exhibited by the fact the CIOP was taking place was welcomed. However, many participants expressed grave distrust in contractors and the MoD during the CIOP, particularly in relation to the materials and information made available, and the lack of independent review.</p>

<b>Isolus Front End Consultation Recommendations</b>	<b>MoD Responses</b>	<b>CIOP Comment</b>
<p><b>9.</b> <i>Understanding public views and respecting their legitimacy should be encouraged at all levels; decisions should clearly demonstrate this respect and that those public concerns have been addressed.</i></p>	<p><b>Accepted.</b> The process of obtaining public views and recommendations is a key part of the work being carried out on the ISOLUS project. While decisions will be taken in the light of those views, inevitably there may be some that have to be rejected. Where this is the case the reasons for this action will be made known.</p>	<p>Respect was another theme that arose strongly in the CIOP, with many participants particularly viewing contractors' information provision and behaviour at public meetings and national events as demonstrating their lack of respect for the public, and for people's views. That the FEC recommendations did not appear to have properly taken into account in the recommendations was seen as further demonstration that the contractors and the MoD were not properly respecting the views of the public.</p>
<p><b>10.</b> <i>It is recommended that the MOD recognise that consultation of itself can engender more positive relationships.</i></p>	<p><b>Accepted.</b> In an era of 'Open Government', the MOD recognises that more has to be done to break down the public perceptions of secrecy, and that the Department acts in its own interests. It is hoped that by involving the public in the work being carried out on ISOLUS, a solution will be reached that is publicly more acceptable and which contributes to a more positive and open relationship between the MOD and the public.</p>	<p>That consultation was welcomed, and was seen as being a 'step in the right direction' was emphasised, even by those who criticised the CIOP processes. It was widely affirmed that consultation aided better understanding and helped break down barriers.</p>
<p><b>11.</b> <i>Bodies who are widely seen to be acting in the interests of people and the environment should be enabled to provide authority to information through their review and verification of that information (see also Recommendation 19 and Recommendation 50).</i></p>	<p><b>Accepted.</b> The value of independent oversight is acknowledged – see the response to Recommendation 19. It is intended to make as much information as possible freely available to the public, including independent bodies.</p>	<p>The lack of independent input into the CIOP was criticised, and the need for independent review and preview emphasised strongly.</p>

<b>Isolus Front End Consultation Recommendations</b>	<b>MoD Responses</b>	<b>CIOP Comment</b>
<p><b>12.</b> <i>The MOD should review approaches to information provision being developed in other agencies, and considers ways of providing more publicly accessible information.</i></p>	<p><b>Accepted.</b> The MOD has sought to make the ISOLUS project accessible to the public by holding public consultations, setting up and maintaining the ISOLUS website, issuing press releases, distributing leaflets, and answering individual enquiries from members of the public. It will continue to look at other ways of releasing information. The MOD has links with Other Government Departments (OGDs), and regularly holds a forum to discuss issues relating to Project ISOLUS. The ways in which OGDs make information publicly available will be explored at these forums and also in discussions with the Department for the Environment Food and Rural Affairs (DEFRA) in relation to their ongoing public consultation on radioactive waste management. In addition, consideration will be given to using advice and expertise available from external organisations.</p>	<p>The accessibility, and limits of content, on the information available to CIOP were criticised; especially the absence of an independently reviewed assessment of the options and of risk assessments.</p> <p>Providing accessible – and comprehensive – information requires further attention.</p>
<p><b>13.</b> <i>The MOD should specifically consider the ways in which the local media can be utilised in relation to consultation at specific sites, and seek out other local information channels for similar use.</i></p>	<p><b>Accepted.</b> No site(s) have yet been selected. When the project reaches that stage, the local media will be invited to become involved. MOD will continue to issue press releases as appropriate, and is willing to take forward suggestions from the media on how the system may be improved. Avenues for further promoting the project and ensuring that public information is available will be fully explored before the next stage of consultation</p>	<p>The local media played a significant role in the CIOP, and the website was clearly used widely to provide background information. However, local communication was not intensive, and in any further phases, greater attention should be paid to seeking and using local information channels. One means of implementing this is through comprehensive identification of local stakeholder groups, and communication, in the first instance, with such groups.</p>

<b>Isolus Front End Consultation Recommendations</b>	<b>MoD Responses</b>	<b>CIOP Comment</b>
<p><b>14.</b> <i>Serious consideration should be given to ways in which further details of the submarines, relevant to all aspects of the interim storage of the radioactive wastes, can be made public or made available for independent expert scrutiny. MOD compliance with Radiation Preparedness and Public Information Regulations (REPPIR) should be publicly stated. Where information cannot be made available, the reasons should be clearly and publicly explained.</i></p>	<p><b>Accepted.</b> Details of wastes from nuclear submarines are publicly available in the ‘United Kingdom Radioactive Waste Inventory’, which provides information on the quantity, radioactive components and location of high, intermediate and low level radioactive waste. This inventory is issued jointly by the Department for the Environment, Food and Rural Affairs (DEFRA) and United Kingdom Nuclear Industry Radioactive Waste Executive Limited (UK NIREX Ltd). The inventory was last published in 1998 and the latest one is due to be published in 2002. The dismantling process will be conducted in compliance with all relevant legislation. There are a series of levels for holding radioactive wastes on a site that have to be exceeded before REPPIR comes into effect. MOD and defence contractors’ sites are compliant with REPPIR. Reports of the Hazard Identification and Risk Evaluation required by the regulations will be made available to the public. Emergency response arrangements, already in place in conjunction with local agencies, will continue under REPPIR at these sites. Any option selected for Project ISOLUS will be required to comply fully with all relevant UK statutory provisions including the Radiation Emergency (Preparedness and Public Information) Regulations 2001 (REPPIR).</p>	<p>There were repeated calls for risk assessments, environmental assessments, and broad social assessments to be undertaken and made public during the CIOP. Again, it was stated that independent expert scrutiny was necessary to provide confidence in such assessments, and hence to enable acceptability.</p> <p>The differences in submarines that have different designs and different operating lives was seen to be significant; this may be an area where scrutiny has to be limited to an independent panel, and it seems that this is acceptable.</p>

<b>Isolus Front End Consultation Recommendations</b>	<b>MoD Responses</b>	<b>CIOP Comment</b>
<p><b>15.</b> <i>The consideration of intergenerational equity lends some weight to the preference for leaving reactor compartments intact and this should be taken into account</i></p>	<p><b>Noted for further consideration.</b> This view is appreciated. However, another view might be that the dismantling and packaging of the waste should be undertaken by this generation, and not left to succeeding generations. The various options open for dealing with the reactor compartments will be subject to analysis for Best Practical Environmental Options (BPEO) and environmental impact statements. From this will evolve a result that will have the least impact on today's workforce, and will result in the least work left for future generations. Factors that will need to be taken into account include the existence of a waste stream, the availability of technology and a skilled workforce at sites. Further consultation will take place on this matter before a final decision is made.</p> <p><b>MoD further response, November 2003.</b> The recommendation was that intergenerational equity lends some weight to the preference for leaving the reactor compartment intact and this should be taken into account. The commentary before the recommendation outlined both views of intergenerational equity. Whilst MOD noted the recommendation for further consideration, it is being taken into account in the consultation process and will be one of the factors considered in making a decision. This recommendation has therefore been accepted.</p>	<p>The CIOP more strongly affirmed that storage of RCs intact was considerably more acceptable than cut up, which was broadly seen as unnecessary and creating unacceptable risks (the unacceptability of the risks was associated with their lack of necessity).</p> <p>A further dimension of intergenerational equity supported this: contamination of the environment, seen as inevitable if RCs are cut up, was seen as posing a further and avoidable burden on future generations.</p> <p>The factors noted in the MoD response – the existence of a waste stream, the availability of technology, and a skilled workforce, were generally rejected as not being of sufficient importance to outweigh factors such as safety, risk and contamination minimisation, and uncertainty over future waste management strategies.</p>

<b>Isolus Front End Consultation Recommendations</b>	<b>MoD Responses</b>	<b>CIOP Comment</b>
<p><b>16.</b> <i>Although assessed as relatively low, the risks associated with submarine wastes should not be presented as insignificant; this is likely to be counterproductive in terms of generating public acceptability.</i></p>	<p><b>Accepted.</b> Presentation of information on the risks, in the form of Environmental Impact Statements (EIS) will not represent them as insignificant, but present the current knowledge and assessment of those risks.</p>	<p>Very different understanding of risks are held by technical professionals in the nuclear industry and the wider public. The significance and ‘weighting’ of low probability high consequence events is a case in point, as is the technical distinction between hazard and risk, which is not reflected in lay use of the terms. The repeated assertions from such professionals during the CIOP that risks were manageable, controllable, and thus low, was counterproductive when engaging with a lay public who are concerned with, for example, worst case accidents and low levels of contamination. People felt patronised and that their concerns were being dismissed.</p>
<p><b>17.</b> <i>Public acceptability will be enhanced the more ‘best possible’ practice is utilised (rather than best practicable means), and thus best possible practice should be pursued and not be constrained by cost, unless a robust case for doing otherwise can be publicly justified.</i></p>	<p><b>Accepted.</b> As part of its evaluations, the MOD will be looking for the best solution to fit the requirement. All factors will be taken into account, with safety key amongst them. Whilst costs to the taxpayer will also need to be a consideration, the safety aspects of the requirement will not be sacrificed in order to make the solution more affordable. See also Recommendation 4.</p>	<p>Best possible practice was affirmed as a requirement of public acceptability.</p>

<b>Isolus Front End Consultation Recommendations</b>	<b>MoD Responses</b>	<b>CIOP Comment</b>
<p><b>18.</b> <i>Residual risks and uncertainties should be acknowledged in communication activities, and judgements about them debated and justified.</i></p>	<p><b>Accepted.</b> There are risks in every activity. Where there are relevant and identified risks with the ISOLUS requirement, these will be made public.</p>	<p>As with 16, the differences in understanding of risk need to be better articulated and resolved. It is crucial to acceptability that what the public judged to be a 'risk' is identified and addressed.</p> <p>As well as the health and environmental hazards associated with radioactivity, the identification of potential sites brought a number of social risks to the fore, among them impacts on local economy and local quality of life. Many of these were considered central, rather than residual.</p>
<p><b>19.</b> <i>Recording and record keeping practices in relation to worker exposure to radiation should be independently reviewed (see also Recommendation 30).</i></p>	<p><b>Rejected.</b> Worker doses and working practices are controlled by the Ionising Radiations Regulations 1999 (IRR99) and are enforced in the UK by the Health and Safety Executive (HSE). It is a requirement of IRR99 that radiation doses be controlled. HSE often check working practices to ensure compliance. In addition classified workers should have their radiation doses monitored using dosimeters supplied by an approved HSE Approved Dosimetry Service. An HSE Approved Record keeping service must also keep dose records. Employees and Employers have access to these records. HSE also have access and obtain annual statistical information in the form of the Central Index of Dose Information (CIDI), which is available on the HSE web site. Working practices will also be the subject of safety representative scrutiny, as is the case for all work.</p>	<p>A small number of participants affirmed this specific point, and the general view that independent verification of safety, health, social and environmental assessments was necessary gives it further support.</p> <p>Anonymised review would provide confidence, or otherwise, that worker exposure is properly controlled. Its absence supports contentions that exposure is improperly controlled. The extent to which the regulators are seen to fulfil the role of independents seemed greater during CIOP than the FEC, but was nonetheless not sufficiently high to enable acceptability.</p>

<b>Isolus Front End Consultation Recommendations</b>	<b>MoD Responses</b>	<b>CIOP Comment</b>
<p><b>20.</b> <i>Doses to the public and workers should be minimised and avoided where at all possible. Records of doses should be in the public domain.</i></p>	<p><b>Accepted.</b> The results of radiation surveys are published in the Marine Environmental Radioactivity Surveys for Nuclear Submarine Berths reports, available from Her Majesty's Stationery Office (HMSO). The Food Standards Agency (FSA), Department for the Environment, Food and Rural Affairs (DEFRA), the Scottish Environmental Protection Agency (SEPA), and the Scottish Executive amongst others publish annual reports on environmental monitoring around nuclear sites, including those with defence involvement. They are available on the website <a href="http://www.foodstandards.gov.uk">www.foodstandards.gov.uk</a>. As part of the ISOLUS work, the possibility will be explored for information to be posted on the ISOLUS website, with agreement from workers and in such a form that individuals cannot be identified. It may, however, be difficult to distinguish between doses acquired by workers through ISOLUS work and that acquired as a result of any other nuclear work. The work of HSE and the application of IRR99 is reviewed by the Ionising Radiation's Advisory Committee.</p>	<p>That doses should be minimised was a strong theme of the CIOP. As with other scrutiny issues, the publication of dose records was not given a great deal of attention, although the general requirement for more data to be available on dose and health effects would include this.</p>
<p><b>21.</b> <i>Where options and choices that have implications for the management of the toxic substances within the submarines are considered, similar principles to those raised in relation to radioactive wastes should be applied. Information on the toxic substances contained in the submarines should be publicly accessible, especially at sites proposed for dismantling the submarines.</i></p>	<p><b>Accepted.</b> Environmental Impact Statements (EIS), which are required as part of the project planning process will address relevant toxic substances that have an effect on the environment. EIS are made available to the public. Legislation is in place for special wastes and hazardous substances, and this will be complied with. The same duty of care will be applied to all hazards whether they are nuclear or conventional.</p>	<p>Again, this was an issue that gained little attention during CIOP, although the general principle was affirmed.</p>

<b>Isolus Front End Consultation Recommendations</b>	<b>MoD Responses</b>	<b>CIOP Comment</b>
<p><b>22.</b> <i>Metals contaminated with very low levels of radiation should not enter the scrap metal market; a policy of ‘dilute and disperse’ is not acceptable.</i></p>	<p><b>Rejected.</b> No materials will be released into the re-cycling market unless they comply with the standards set by the relevant environmental regulator (Environment Agency (EA) in England and Wales and the Scottish Environmental Protection Agency (SEPA) in Scotland). However, it has to be recognised that almost all metals/materials, even as first made, are radioactive to some degree.</p> <p><b>MoD further response, November 2003.</b> This recommendation was shown as rejected because it proposed that no metals with very low levels of radiation should enter the scrap metal market. As almost all metals/materials are radioactive to some degree, this is an unrealistic aspiration. No materials will be released into the re-cycling market unless they comply with free release criteria set by the relevant independent environmental regulators. They are the Environment Agency (EA) in England and Wales, and the Scottish Environment Protection Agency (SEPA) in Scotland.</p>	<p>The principle of dilute and disperse remained unacceptable; that metals with higher than natural levels of radiation might enter the scrap metal market was unacceptable.</p>
<p><b>23.</b> <i>Afloat storage should be discontinued.</i></p>	<p><b>Accepted.</b> The MOD’s current policy is to subject submarines to a regular maintenance programme and store them afloat for up to 30 years. This process could be extended well beyond that period. While this is the MOD’s current storage method, uncertainty of when a national nuclear waste management facility will be available, and the long term interim availability of space for the storing of submarines afloat, make it necessary to look at a long term land storage scenario. The MOD is pleased to note that this strategy is in line with public preferences.</p>	<p>The confrontation with the difficulties of real proposals led some participants to reconsider the ‘do nothing’ option of continued afloat storage. However, storage on land was affirmed as more acceptable.</p>
<p><b>24.</b> <i>Contingency plans for dealing with delays and limitations of access to necessary facilities need to be considered, so those situations such as that pertaining to the Valiant do not arise.</i></p>	<p><b>Accepted.</b> The need for contingency planning is recognised. The delay to Valiant was the result of a number of unforeseen events, which combined to cause the delay. All have been resolved and MOD intends to proceed with the defuel as soon as preparations are complete.</p>	<p>This issue did not arise.</p>

<b>Isolus Front End Consultation Recommendations</b>	<b>MoD Responses</b>	<b>CIOP Comment</b>
<b>25.</b> <i>Project ISOLUS should proceed with developing interim storage on land.</i>	<b>Accepted.</b> We acknowledge the support for developing the interim land storage project. The aim of the ISOLUS project is to investigate options for the storage of intermediate level waste, be it in the form of land storage of reactor compartments, packaged or unpackaged waste.	In relation to the developments in national radioactive waste management strategy, no immediate need for proceeding with ISOLUS was seen to exist, although it was affirmed that the storage of the waste did need to be addressed. The storage of intact RCs on land was overwhelming the most acceptable option.
<b>26.</b> <i>Continuous monitoring of the stored wastes should be undertaken.</i>	<b>Accepted.</b> However, the extent to which this is ‘continuous’ in practice will depend on the solution adopted. It will be a requirement of any safety case for the storage facility to ensure that appropriate monitoring arrangements are put in place. Provisions already exist in nuclear storage facilities for monitoring by the Nuclear Installations Inspectorate (NII) and the Environment Agency (EA), appointed for such purposes.	This issue did not arise explicitly, but is affirmed in the required for the highest standards of safety. Frequent and comprehensive monitoring of the surrounding environment was generally of greater direct concern, particularly at existing nuclear sites.
<b>27.</b> <i>Plans for responding to problems, including the flexibility to respond to unanticipated problems should be developed.</i>	<b>Accepted.</b> Such plans are a fundamental requirement for work with Ionising Radiations and for facilities handling radioactive materials. Any option selected for Project ISOLUS will be required to comply with the relevant statutory requirements (see also Recommendation 14).	There was a sense in which the proposals to cut up and package RCs earlier rather than later was seen to contradict flexibility, especially as the final form and location of the wastes is not known.
<b>28.</b> <i>The store itself should provide a level of containment, and be capable of being temporarily sealed in the event of leakage to provide environmental isolation within the building.</i>	<b>Accepted.</b> Any store provided or utilised for the waste arising from the ISOLUS project would need to meet all relevant legislative requirements. The capability to seal the store will have to be taken into account in the design of the project, and will be dependent upon the risks of discharge that can be foreseen. Any containment required to safeguard any perceived gaseous, liquid or solid discharges will be built into the project design.	Again, this level of detailed comment was not made explicitly, but coheres with the general requirement for high standards of safety and hence control. With proposals on the table, attention was diverted to more basic concerns such as the size of the proposed store.
<b>29.</b> <i>Provision should be made for local publication of all monitoring results at waste storage sites and at sites where submarines are dismantled.</i>	<b>Accepted.</b> It is recognised that whilst the results of monitoring at present are placed in the public domain in a way that meets legal requirements, this may not be in a form which is readily available to the general public. Further work will be undertaken as the project progresses to try and establish a means of providing the results in a more accessible and acceptable form to local populations.	This point was affirmed, although it was not a major theme. The general principle of openness and accessibility of information was strongly represented.

<b>Isolus Front End Consultation Recommendations</b>	<b>MoD Responses</b>	<b>CIOP Comment</b>
<b>30.</b> <i>Consideration should be given to additional means for providing independent monitoring, and/or independent peer review of monitoring.</i>	<b>Accepted.</b> This will need to be addressed as the project develops. It may be possible to arrange for an independent authority, such as a university, to carry out environmental monitoring and/or review results. This has been carried out in the past at Rosyth by consultants, on behalf of the local authority. Outside the immediate boundary of the site itself, it would, of course, be open for any individual or group to take samples and measurements.	The general principle of independent review was affirmed.
<b>31.</b> <i>Consideration should be given to means of independent auditing of management and security procedures and practices.</i>	<b>Accepted.</b> Management procedures and appropriate security arrangements are already part of ensuring the safety of nuclear work. Regulators will require organisations conducting such work to subject their safety justifications to independent peer review, and the regulators themselves will then conduct further review and assessment. A similar approach applies to the auditing of actual practices.	The general principle of independent review was affirmed.
<b>32.</b> <i>A site with existing, relatively large scale, nuclear activity should be used, unless there are strong and clearly justified reasons otherwise.</i>	<b>Accepted.</b> No site has yet been chosen, but it is recognised that it may be more practical to use an existing licensed site that has been used for nuclear activity. If such a site is not selected, clear justifications will have to be made, an option study and Environmental Impact Assessment (EIA) will need to be carried out and an application made for the issue of a 'nuclear site licence'. Even if an existing nuclear licensed site is selected, an option study and EIA would still be required.	An existing nuclear site remained the preference, though other contaminated sites were also considered to be acceptable.
<b>33.</b> <i>Geological stability and the implications of climate change need to be assessed in relation to the site(s) used for storing the wastes.</i>	<b>Accepted.</b> Before approval can be given for the chosen facility, these issues, along with others will have to be considered as part of safety justifications to satisfy regulators that the site can be operated safely.	This was affirmed.
<b>34.</b> <i>The wastes should be stored in a site where unauthorised access is prevented.</i>	<b>Accepted.</b> The prevention of unauthorised access is a fundamental legislative requirement for all nuclear sites. The ability to prevent unauthorised access will be one of the many factors to be considered.	This was affirmed.

<b>Isolus Front End Consultation Recommendations</b>	<b>MoD Responses</b>	<b>CIOP Comment</b>
<b>35.</b> <i>The possibility of storing the wastes at more than one site should not be discounted.</i>	<b>Accepted.</b> Although the preference is for all waste to be stored on one site, no option has been ruled out at this stage, and if there are clear advantages for storing on more than one site, these will need to be taken into account.	This was affirmed.
<b>36.</b> <i>The MOD should be explicit about the potential for expansion of storage beyond the existing 27 submarines, and should clarify, as far as possible, what this potential could imply for the storage site(s).</i>	<b>Accepted.</b> It is currently envisaged that the planned facility will only be utilised for the storage of radioactive wastes from submarines of which there are 27 currently stored afloat or in-service. There will be a need to cater for the submarines currently in build or planned to be built. This could be at the original ISOLUS facility or at a new location. Depending on the timing of the provision of the National Radioactive Waste Management Facility (NRWMF) it may be possible to utilise storage space vacated by the earlier submarine radioactive waste.	This was affirmed. The potential to attract additional wastes, include the national repository, was of great concern.
<b>37.</b> <i>The MOD should be explicit about the responsibility, location and management of the waste beyond the initial 30 year period, and clarify, as far as possible, the implications for the storage of site(s).</i>	<b>Accepted.</b> MOD will retain responsibility for all waste until its final disposal. The initial 30 year ISOLUS contract will have an option for a follow on contract, to continue storage of the radioactive waste, together with provision for its processing and packaging in readiness for final disposal.	This was affirmed. The potential for interim storage to become long term storage was a serious concern.
<b>38.</b> <i>Transportation of the wastes should be minimised, and should avoid centres of population, subject to other considerations, unless there are strong and publicly acceptable reasons otherwise.</i>	<b>Accepted.</b> It is the MOD's aim that transportation of waste will be minimised, wherever possible. If there is a requirement to transport the intact reactor compartments, then the preferred method will be to undertake this by sea, in view of the sheer size and bulk of the compartments. Any transportation will be required to comply with the relevant statutory requirements.	This was affirmed; if anything, transport minimisation was identified even more strongly as a major component of the acceptability of proposals.

<b>Isolus Front End Consultation Recommendations</b>	<b>MoD Responses</b>	<b>CIOP Comment</b>
<b>39.</b> <i>The Minister should be informed of the strength of feeling against privatisation, and the problems of trust and confidence in contractors, and serious consideration is given to ways of organising Project ISOLUS that maximise the control, responsibility and accountability of the MOD.</i>	<b>Accepted.</b> Whilst these views will be drawn to the attention of ministers, it must be recognised that the expertise and skills required to dismantle the submarines and to store the radioactive waste lie in the private sector, and for the requirement to be successful, involvement from industry will be unavoidable. The form that this relationship will take has still to be decided, but it is clear that a close partnership will need to exist between the MOD and the contractor. MoD will retain responsibility for the waste until final disposal. See Recommendation 37.	This was a major theme of the CIOP, especially in relation to the sense that contractors were controlling the development of policy by putting forward proposals at this stage.
<b>40.</b> <i>When assessing proposals, consideration should be given to the availability of suitable expertise in both the geographical area and the relevant areas of knowledge and experience, and for how this expertise will be maintained over time.</i>	<b>Accepted.</b> The availability of suitable expertise is recognised as an issue. The Department of Trade and Industry (DTI) has initiated a Nuclear Skills Group to examine the long term position of skills for the nuclear industry. The group draws its members from various government departments, including MOD, industry and academics. The group's first step is to establish a baseline of nuclear skills in the UK. The work of the group will be important to the success of the ISOLUS project.	The necessity for skills to be available was recognised in CIOP, but to a large extent it was not seen as of major concern. That the appropriate skills are available to ensure safety is a condition of acceptability.
<b>41.</b> <i>An audit of the skills and knowledge bases required over the first 30 years of storage, and beyond, should be conducted and used to develop plans for the maintenance of such skills and knowledge bases.</i>	<b>Accepted.</b> This work will be informed by the study currently being undertaken by the DTI's Nuclear Skills Group (see Recommendation 40), and will be augmented by work the MOD will carry out as part of the ISOLUS project development.	This was not raised explicitly.
<b>42.</b> <i>Provision of whistle blowing should be made within the management plan.</i>	<b>Accepted.</b> Policies are being developed in the civil nuclear industry to protect people who report bad practices and instances. The MOD will examine these as part of the project, and will implement them where it is practical to do so.	This was affirmed.

<b>Isolus Front End Consultation Recommendations</b>	<b>MoD Responses</b>	<b>CIOP Comment</b>
<p><b>43.</b> <i>The principles and practices of regulation should be made more publicly accessible, especially around potential sites. The responsibilities of different bodies need to be made clear. Regulators should seek to engage in two-way communication, especially with affected populations. The responsibilities of various regulatory bodies need to be reviewed to assess duplication or lack of contiguity in regulatory responsibilities for nuclear submarines.</i></p>	<p><b>Accepted.</b> The Health and Safety Executive (HSE)/Nuclear Installations Inspectorate (NII) and the environment agencies have developed memoranda of understanding governing their relationships in regulating nuclear sites. Similarly, MOD has (or is developing) memoranda separately with each of these organisations detailing arrangements to be applied where defence activities are exempted from relevant legislation. These memoranda are reviewed regularly and are (or will soon be) published on relevant websites. Regulators (including MOD's internal regulator) publish regular reports on their activities and attend local liaison committees at which representatives of communities local to nuclear sites can discuss matters with them. In addition, Local Liaison Committees (LLC) have been established at all nuclear sites to provide public information on activities being undertaken on such sites. Both the Nuclear Installations Inspectorate (NII) and the relevant environment agency attend these meetings and provide relevant information and are available to answer questions. If a new site was to be selected then it could be expected that an LLC would be established. In addition, NII provide quarterly reports of their activities to LLC members. Such reports are also available on the Health and Safety Executive's (HSE) website, <a href="http://www.hse.gov.uk">www.hse.gov.uk</a>.</p>	<p>In general, greater confidence in regulators was expressed in CIOP. However, many of the issues raised in relation to concerns about safety demonstrate a lack of familiarity with regulatory practice, and it remains the case that more accessible information is needed.</p>

<b>Isolus Front End Consultation Recommendations</b>	<b>MoD Responses</b>	<b>CIOP Comment</b>
<p><b>44.</b> <i>Serious consideration is given to supporting the case for civil regulation of waste stores specifically, and with other MOD nuclear activities more generally.</i></p>	<p><b>Rejected.</b> Storage of waste on civil nuclear licensed sites (including defence-related sites) is regulated fully by the civil regulators. Identical requirements are placed on the storage of waste on MOD operated sites, and this is regulated by the relevant environment agency together with the MOD internal regulator. Substantial aspects of defence nuclear activity are subject to civil regulation. Where exemptions exist, the Secretary of State for Defence requires equivalent arrangements to be put in place, so far as is practical. See also the response to Recommendation 43 above.</p> <p><b>MoD further response, November 2003.</b> This recommendation was originally rejected on the grounds that it sought to draw MOD activity generally into civil regulation. However, there is no problem with civil regulation of the ISOLUS Project. The cut-up of the submarine will be under the control of a contractor and, regardless of whether the activity takes place on a civil or MOD site, it will be subject to civil regulation under the auspices of the Nuclear Installations Act 1965 (NIA 65), which is regulated by the Nuclear Installations Inspectorate (NII). Any discharges from the site would come under the auspices of the Radioactive Substances Act 1993 (RSA 93), which is regulated by the Environment Agency (EA) and Scottish Environment Protection Agency (SEPA). In the context of ISOLUS this recommendation is therefore accepted.</p>	<p>The civil regulation of the wastes gained greater significance in ISOLUS, particularly in relation to the role and authority of the Scottish Executive and SEPA. Civil regulation, and the civil procedures generally, were more acceptable than internal MoD procedures and exemptions, which were unacceptable.</p>

<b>Isolus Front End Consultation Recommendations</b>	<b>MoD Responses</b>	<b>CIOP Comment</b>
<p><i>45. Further phases of consultation should aim to include anyone who wishes to be included, as far as this can be made possible.</i></p>	<p><b>Accepted.</b> The intention of the Front End consultation process was to inform the MOD how the public wish to be consulted in the future, and to get an understanding of those views that should be taken into account when developing the ISOLUS requirement. For this reason, it was not intended to have intense consultations in just one area, but to get a broad base of views from different areas of the country, including those areas where it is unlikely that the work will be carried out. The intention is that once proposed sites have been identified, the consultation process will begin to concentrate more on those particular areas, with the aim of including as many people as possible in the process. The MOD recognises that it is possible that people who feel they should have been consulted have been missed out, and the Front End consultation process has helped to identify those people. The MOD is open to suggestions for looking at ways of making the process as wide reaching as possible in the future.</p>	<p>This was affirmed, with a particular emphasis on the rights of local communities to be fully informed and consulted.</p>
<p><i>46. The consultation design should enable those who may not feel they can speak freely to contribute.</i></p>	<p><b>Accepted.</b> However, further work is required on how further consultations should be conducted, and the Project Consultation Steering Group (PCSG) (see Recommendation 8) will aid this work. The MOD will address all the matters raised in the consultation process, with the aim to take forward as many practical recommendations as possible.</p>	<p>This was affirmed.</p>
<p><i>47. Counter experts should be included in future phases of consultation (see also Recommendation 50)</i></p>	<p><b>Noted for further consideration.</b> It is intended that a wide range of people, with varying degrees of knowledge and skills, and in varying locations will be included in further consultations.</p> <p><b>MoD further response, November 2003.</b> This recommendation refers to the inclusion of counter experts in future stages of consultation. It has been accepted that for the next phase of consultation a counter expert will be engaged following a MOD competitive tendering exercise. Nominations will be sought from the ISOLUS Project Consultation Steering Group (PCSG). As the current proposals are only in outline, they provide insufficient detail to benefit from a counter expert view.</p>	<p>The preference in CIOP was for independent, rather than counter, expertise to be included, and to play an important role in validating and assessing the information base.</p> <p>Given the range of expertise that was required, and the difficulties of agreeing the ‘independence’ of any one individual, a panel of independent experts was seen to be necessary.</p>

<b>Isolus Front End Consultation Recommendations</b>	<b>MoD Responses</b>	<b>CIOP Comment</b>
<p><b>48.</b> <i>The Steering Group in future stages of consultation should be reconvened to include a lay person, a national ENGO, and representation of relevant international experience. Once sites are identified, people from sites under consideration should also be represented in the Steering Group(s). It may be necessary to fund individuals to enable them to serve on the Steering Group</i></p>	<p><b>Accepted.</b> It is accepted that a Project Consultation Steering Group (PCSG) should continue to operate. While detailed consideration will be given as to who should be included in its membership it is accepted that there may be benefit in including the type of individuals referred to in the recommendation. This aim will, however, need to be balanced with the need to keep the group to a workable size. The feasibility of funding those members will be explored, taking account of Government policy and in consultation with the civil nuclear industry.</p>	<p>CIOP did not consider the membership of the Steering Group explicitly, but representations were received from local stakeholders requesting inclusion on the Steering Group.</p>
<p><b>49.</b> <i>A Steering Group for future consultation should continue to be convened and serviced by an independent third party. How the Steering Group might provide a greater degree of accountability for the consultation process, especially in terms of ensuring findings are taken into account, should be given further consideration.</i></p>	<p><b>Accepted.</b> See Recommendation 48. It is intended to appoint an independent organisation to undertake future consultations, and for an independent organisation to convene the Project Consultation Steering Group (PCSG). Due consideration will be given to what can be learnt from the Front End consultation and ways in which the process may be improved upon.</p>	<p>As above, the CIOP did not explicitly address the conduct of the SG, although the SG itself advised that evaluation of CIOP should be conducted.</p>

<b>Isolus Front End Consultation Recommendations</b>	<b>MoD Responses</b>	<b>CIOP Comment</b>
<p><b>50.</b> <i>Consideration is given to establishing an independent advisory group to provide input to Project ISOLUS. Consideration should also be given to convening a technical advisory group, which should include counter expertise (see also Recommendation 47)</i></p>	<p><b>Noted for further consideration.</b> It is noted from earlier recommendations that the views expressed in this consultation are that MOD would be expected to retain responsibility and accountability for this work. It will therefore be necessary to explore how the advisory group recommended could be established without conflicting with this aim.</p> <p><b>MoD further response, November 2003.</b> This recommendation refers to the establishment of an independent advisory group and a technical advisory group. MOD retains responsibility and accountability for Project ISOLUS and within that for the evaluation and assessment of industry's proposals. Whilst the MOD cannot accept this recommendation in full, in undertaking this task, we will seek the views of those with appropriate technical knowledge, including the counter expert referred to in Recommendation 47.</p>	<p>As 47, an independent expert group to evaluate and assess the information base is seen as a prerequisite of acceptability.</p>
<p><b>51.</b> <i>The public preference for independent oversight of radioactive waste management should be communicated to the relevant bodies (see also Recommendation 1).</i></p>	<p><b>Accepted.</b> This recommendation will be passed to the Department for the Environment, Food and Rural Affairs (DEFRA), the Nuclear Installations Inspectorate (NII), environment agencies and the Radioactive Waste Management Advisory Committee (RWMAC).</p>	<p>Independent oversight was affirmed as necessary for acceptability.</p>

<b>Isolus Front End Consultation Recommendations</b>	<b>MoD Responses</b>	<b>CIOP Comment</b>
<p><b>52.</b> <i>The MOD's response to these recommendations should clearly indicate where consultation outcomes have been taken into account, and where not. The reasoning behind plans and decisions should be fully transparent. The response should be in the public domain and easily accessible (for example, on the website, in printed form available on request, and distributed to participants in the Front End Consultation).</i></p>	<p><b>Accepted.</b> The MOD response to the Front End Consultation Final Report<sup>1</sup> gives an indication of how we should take the recommendations forward, and will be published on the ISOLUS project website at <a href="http://www.nucsubs.org.uk">www.nucsubs.org.uk</a>. Copies will be sent to participating members of the Front End consultation and will also be made available on request. A small number of recommendations will be addressed more fully as the project progresses.</p>	<p>This was a major theme of CIOP. The view that the FEC Recommendations had not been properly taken into account in the outline proposals, and that the MoD's reasoning and process of reaching a decision was not transparent, was widespread.</p>
<p><b>53.</b> <i>Further stages of consultation should undertake to publish all outputs, unless there are strong and clearly justified reasons otherwise.</i></p>	<p><b>Accepted.</b> It is intended to continue publishing the findings of this, and future consultations on the ISOLUS website. Where the MOD is unable to do this, justifiable reasons will be provided.</p>	<p>This was not explicitly addressed, but affirmed under the general principle of openness.</p>
<p><b>54.</b> <i>An independent third party or parties should conduct subsequent stages of consultation.</i></p>	<p><b>Accepted.</b> MOD intends to engage an independent practitioner, for example, a university or commercial enterprise to take forward recommendations made by the Project Consultation Steering Group (PCSG) and undertake future consultations (see also Recommendation 49).</p>	<p>This appeared to be affirmed.</p>

<b>Isolus Front End Consultation Recommendations</b>	<b>MoD Responses</b>	<b>CIOP Comment</b>
<p><b>55.</b> <i>A fund should be made available to which prospective participants can apply for funding, and clear guidelines developed regarding the provision of such funding.</i></p>	<p><b>Noted for further consultation.</b> Prior to the next stage of consultation, a decision on funding prospective participants will need to be made (see also Recommendation 48). Any such decision will need to be in line with government policy on such matters, and also need to consider how this issue has been handled on other, similar exercises.</p> <p><b>MoD further response, November 2003.</b> Funding has been made available for travel and subsistence for all participants who are not funded as part of their work. Payment has also been made available to members of the Project Consultation Steering Group (PCSG), and members of the public and Non-Government Organisations (NGO's) attending the Citizen's Panel and the National Forum who are not funded through their work. This recommendation has therefore been implemented.</p>	<p>This extended in CIOP to include provision for local communities to undertake activity in order to be able to assess and articulate the acceptability or otherwise of proposals affecting their locality. The issue of resourcing for participants in consultations is one that needs Government attention.</p>
<p><b>56.</b> <i>Widespread publicity should be given to subsequent consultation activities to maximise awareness and to inform people who may wish to participate of their opportunity to do so.</i></p>	<p><b>Accepted.</b> The MOD has attempted to give wide spread coverage to the ISOLUS project, and be as open and honest as possible in its approach. It is impossible to reach everyone, and people may not have been included in the consultation processes, who feel that they should have been. The MOD will look at ways of improving on this issue for the next stage of consultations, and is willing to look at any recommendations that the public may have, in order for there to be widespread publicity to the requirement and its issues.</p>	<p>This remained an issue in, and a criticism of, the CIOP. The recommendation was affirmed.</p>
<p><b>57.</b> <i>As much information as possible should be publicly available, including all safety related information. Where information is not made publicly available, reasons should be given as to why this is the case.</i></p>	<p><b>Noted for further consideration.</b> While the intention is to make as much information publicly available as possible, there may be instances where this is not possible, for example, for commercial and security reasons. In such cases, the reasons for non-disclosure will be made clear.</p> <p><b>MoD further response, November 2003.</b> As was made clear in the original response, subject only to commercial and security constraints where the reasons for non-disclosure will be made clear, information will be publicly available. This recommendation is therefore accepted.</p>	<p>This was affirmed.</p>

<b>Isolus Front End Consultation Recommendations</b>	<b>MoD Responses</b>	<b>CIOP Comment</b>
<p><b>58.</b> <i>Project ISOLUS should provide information, or indicate where such information can be found, on areas where the knowledge bases are disputed or uncertain, such as the health effects of low-level radiation, and notify relevant bodies of particular areas of concern raised by consultees.</i></p>	<p><b>Accepted.</b> Full consideration will be given to releasing as much information as possible, and where this is not possible, full justification will be provided. Areas of concern arising out of the consultation will be brought to the attention of relevant bodies.</p>	<p>This was affirmed.</p>
<p><b>59.</b> <i>The consultation and decision processes should be laid out more lucidly, and be more accessible, with (in as far as is currently possible) a clear timetable of action. It should be clear from the outset of any activities what the objectives of the consultation are, its relationship with and timing within the decision-making process and linked processes, and how the consultation findings will be used.</i></p>	<p><b>Accepted.</b> At this time, the exact route for the decision making process and the consultation period has yet to be finalised. Details will be released as they become available and will form part of the next round of consultations.</p>	<p>This was affirmed.</p>

<b>Isolus Front End Consultation Recommendations</b>	<b>MoD Responses</b>	<b>CIOP Comment</b>
<b>60.</b> <i>A broad range of the public and other stakeholders should be actively included in the next phase of consultation (see also Recommendation 45).</i>	<b>Accepted.</b> The next round of consultations will include as broad a range of the public as possible, and the process for the carrying out of this work will be overseen by the Project Consultation Steering Group (PCSG) prior to the issue of the invitation to industry to submit outline proposals (ISOPS). MOD intends that the people consulted at as part of the Front End consultation process will be further involved or at least informed on the next stage of consultation.	This was affirmed. Local stakeholders particularly were identified not being sufficiently actively invited to participate in the CIOP.
<b>61.</b> <i>Principles emerging from the Front End Consultation, as identified by the Front End Steering Group, should be used for the next stage of consultation. Reference should also be made to principles of best practice as identified by a range of other sources.</i>	<b>Accepted.</b> The next round of consultations will be carried out by an independent organisation, and will be overseen by the project Project Consultation Steering Group (PCSG), who will formulate and provide a clear outline of the way forward, taking into consideration the principles of best practice, drawn from a variety of organisations, as well as the principles emerging from the Front End Consultation. See also Recommendation 49.	This was affirmed.
<b>62.</b> <i>People with local knowledge will need to be included in the consultation team (see also Recommendation 54).</i>	<b>Accepted.</b> However, until the exact details of industry proposals are known, it will be difficult and unwise to predict who will be invited to participate in further consultations. It is intended that a wide range of people, with varying degrees of knowledge and skills, and in varying locations will be invited (see also Recommendation 47). Once a particular site has been identified and forms the focus of consultation, people with local knowledge will clearly be required to contribute to the efficient conduct of consultation.	This was undertaken in the CIOP primarily through liaison with local authorities. It is clear to the LU team that greater effort will need to be undertaken to include local knowledge in the consultation team in any subsequent stages of consultation.

<b>Isolus Front End Consultation Recommendations</b>	<b>MoD Responses</b>	<b>CIOP Comment</b>
<p><b>63.</b> <i>The next stage of consultation should take place not later than the time at which the Outline Proposals are received. In the meantime, Chief Executives of Local Authorities, and other appropriate bodies, should be informed by the MOD of the decision-making and consultation process (including the process prior to Outline Proposals being received) and its projected timetable. The information should also be posted on the consultation web site and provided to those who participate in the Front end Consultation (see also Recommendation 59).</i></p>	<p><b>Accepted.</b> The next stage in the consultation process, and the manner in which it is carried out will need to consider how the communities near to proposed site(s) are involved, whilst ensuring that those communities living near site(s) that are not in serious contention are not alarmed unduly. The means as to how best to inform local authorities will be investigated.</p>	<p>This was undertaken.</p>
<p><b>64.</b> <i>Consideration is given to providing expert advice on consultation and public acceptability, and the means, by which this can be done, to potential contractors.</i></p>	<p><b>Accepted.</b> It is recognised that any consultations carried out by an independent organisation on the MOD's behalf should be undertaken to a high standard. All ISOLUS bidders will be encouraged to use the same organisation for the provision of advice and guidance on the consultation process and findings, in an effort to ensure a common approach.</p>	<p>This was not entirely satisfactory in the CIOP, and requires further attention.</p>

<b>Isolus Front End Consultation Recommendations</b>	<b>MoD Responses</b>	<b>CIOP Comment</b>
<i>65. Once potential sites are identified, consultation techniques should include the provision for people from different sites to meet together to pursue more acceptable solutions.</i>	<b>Accepted.</b> It is recognised that there is value in bringing people together to discuss common issues, as part of the decision making process. This was attempted in the initial consultations, but with limited success, as people are, quite understandably concerned with protecting their own locality. The MOD supports the recommendations, and will endeavour to encourage this practice in future consultations.	This was undertaken in the CIOP through the National Citizens' Panel and National Forum, and judged to be successful. Whilst site specific concerns remained relevant, the collective approach enabled better understanding to be reached and the integration of local and national considerations.

## Appendix 2: The proposals

<b>Summary of Babcock-MNS proposal</b>	
Consortium includes Babcock Support Services Ltd and Mowlem Nuclear Services Ltd	
<b>Option</b>	To transport submarines from Devonport to Rosyth and cut out RCs at Rosyth, or to cut out RCs at Devonport and transport RCs to Rosyth. Cut up RCs at Rosyth in new facility, package ILW in existing Active Waste Accumulation Facility, and transport to purpose built store at Coulport or Sellafield. LLW would be sent to Drigg or its successor. The remainder of the submarine would be recycled. The number of RCs at Rosyth would not exceed 7 at any one point, and should be reduced early in the programme. Babcock-MSN state that their proposal provides 'a national solution that leads to the disposal of the submarines at Rosyth as soon as practicable'.
<b>Siting</b>	<b>Devonport:</b> possible cutting out of RCs and break-up of remainder of submarine. <b>Rosyth:</b> cutting out of Rosyth submarine RCs, and possibly also Devonport submarine RCs, and break-up of remainder of submarine. Cutting up RCs and packaging of ILW. <b>Coulport or Sellafield:</b> storage of ILW. These sites are all nuclear licensed sites. All are in or near existing centres of population.
<b>Transport</b>	Intact submarines or RCs from Devonport to Rosyth by sea. ILW waste packages from Rosyth to Coulport or Sellafield by road, rail or sea. LLW waste to Drigg by road or rail. Transport of waste packages is likely to involve existing routes running through centres of population.
<b>Safety</b>	Babcock-MNS state that the mechanisms of safety are standard and familiar to them and they will comply with all the relevant regulations. They consider the risks to be entirely manageable.
<b>Scrutiny</b>	Babcock-MNS state they will 'encourage and facilitate public inspection throughout the life of the project'.
<b>Openness</b>	Babcock-MNS state they will maintain 'open and transparent channels of information to the public'.
<b>Workforce</b>	Babcock-MNS state their proposal will 'generate jobs throughout its life'. No numbers are given.
<b>Environment &amp; sustainability</b>	Babcock-MNS state that environmental safety will be addressed in an Environmental Statement, and local environmental issues through the planning process. They state that their proposal resolves intergenerational equity issues.
<b>Development</b>	Babcock-MNS state their proposal is to deal with 27 submarines, and after this, new facilities will be decommissioned. The lifetime of the facilities is 35 years plus.

<b>Summary of BNFL proposal</b>	
<b>Option</b>	Dismantle submarine, cut up RC and cut out RPV, package RPV (separately) and other ILW and LLW wastes at either or both Devonport and Rosyth. Transport packaged RPV and other ILW wastes to Sellafield for storage in a purpose built store. LLW will be sent for disposal at Drigg. The remainder of the structure will be 'disposed of to land-fill or re-cycled as deemed appropriate'.
<b>Siting</b>	<b>Devonport and/or Rosyth:</b> cutting up submarines and RC, and packaging of radioactive wastes. <b>Sellafield:</b> Interim storage of ILW, including RPV, in purpose built store <b>Drigg:</b> Disposal of LLW These sites are all existing nuclear licensed sites. All are near existing centres of population
<b>Transport</b>	ILW and LLW waste packages from Devonport and/or Rosyth to Sellafield and Drigg, respectively, by rail. This involves using existing routes which run through centres of population.
<b>Safety</b>	BNFL state that the mechanisms of safety are standard and familiar to them, and that they will comply with all the relevant controls. As existing nuclear sites are being used, security arrangements are also familiar and in place.
<b>Scrutiny</b>	BNFL state that existing arrangements for scrutiny exist and that 'these existing arrangements will continue...and be supplemented on a local or project level as deemed necessary'.
<b>Openness</b>	BNFL state they will produce 'proactive publicity materials' and distribute these using their normal channels. A ' policy on publication of information will be agreed with MoD'.
<b>Workforce</b>	BNFL state that the relevant skills are available at these sites, and will have to be maintained in relation to other activities at the sites. Additional employment (no numbers given) will be generated, for 30 years.
<b>Environment &amp; sustainability</b>	BNFL state that cutting out the RPV now, when skills and resources are available, reduces the burden on future generations. The proposed sites are near to areas with high environmental and amenity value.
<b>Development</b>	The design lifetime of the store is 100 years. The store could be expanded, and could be refurbished to extend its lifetime.

<b>Summary of DML proposal</b>	
<b>Option</b>	<p>To cut out the RC at Devonport and transport the intact RC to a site Dounreay for storage. An extension to the MoD's Vulcan Naval Reactor Test Establishment (NRTE) site at Dounreay in Caithness is under investigation as a possible storage location. Further cutting up could be undertaken at the storage site, or at a further site, if decided upon.</p> <p>The remaining parts of the submarine will be processed at the RC separation site(s). DML states that this will follow established procedures and best practice.</p>
<b>Siting</b>	<p>Devonport: dismantling submarines and cutting out RC. (Please note: dismantling submarines and cutting out RC at Nigg is no longer under consideration.)</p> <p>Dounreay: potential storage site for intact RCs, and possible site for further cut-up of the RCs.</p> <p>Devonport and Dounreay are nuclear licensed sites; Nigg on the Cromarty Firth is not. Devonport is within an existing centre of population; the other sites are not.</p>
<b>Transport</b>	<p>Up to seven intact submarine hulks could be moved from Rosyth to Devonport. Cut out RCs would be moved by sea from Devonport to Dounreay.</p> <p>Later, packaged ILW would be moved from the disassembly site to the National Repository, and LLW sent to Drigg or its successor site. No transport through existing centres of population is envisaged other than of LLW and VLLW.</p>
<b>Safety</b>	<p>DML state that the mechanisms of safety are standard and familiar to them, and that they will comply with all the relevant controls. The exception is the transport of RCs, but DML state this is 'well within established criteria for operations of this type'.</p> <p>No significant risks are anticipated.</p>
<b>Scrutiny</b>	<p>DML state that existing arrangements for scrutiny exist, primarily via the regulatory bodies. Community liaison meetings will be used to provide information.</p>
<b>Openness</b>	<p>DML state that 'a structured communications programme will be designed and implemented' and that they will publish relevant reports and summaries.</p>
<b>Workforce</b>	<p>DML state that skills will be maintained in relation to their ongoing submarine support work.</p> <p>Additional employment (no numbers given) will be generated.</p>
<b>Environment &amp; sustainability</b>	<p>DML state their proposal seeks a balance between ALARP principles and not leaving legacy for future generations.</p> <p>The proposed sites are near to areas with high environmental and amenity value.</p>
<b>Development</b>	<p>The design lifetime of the store is 60 years. The store could be expanded, and could be refurbished to extend its lifetime.</p>

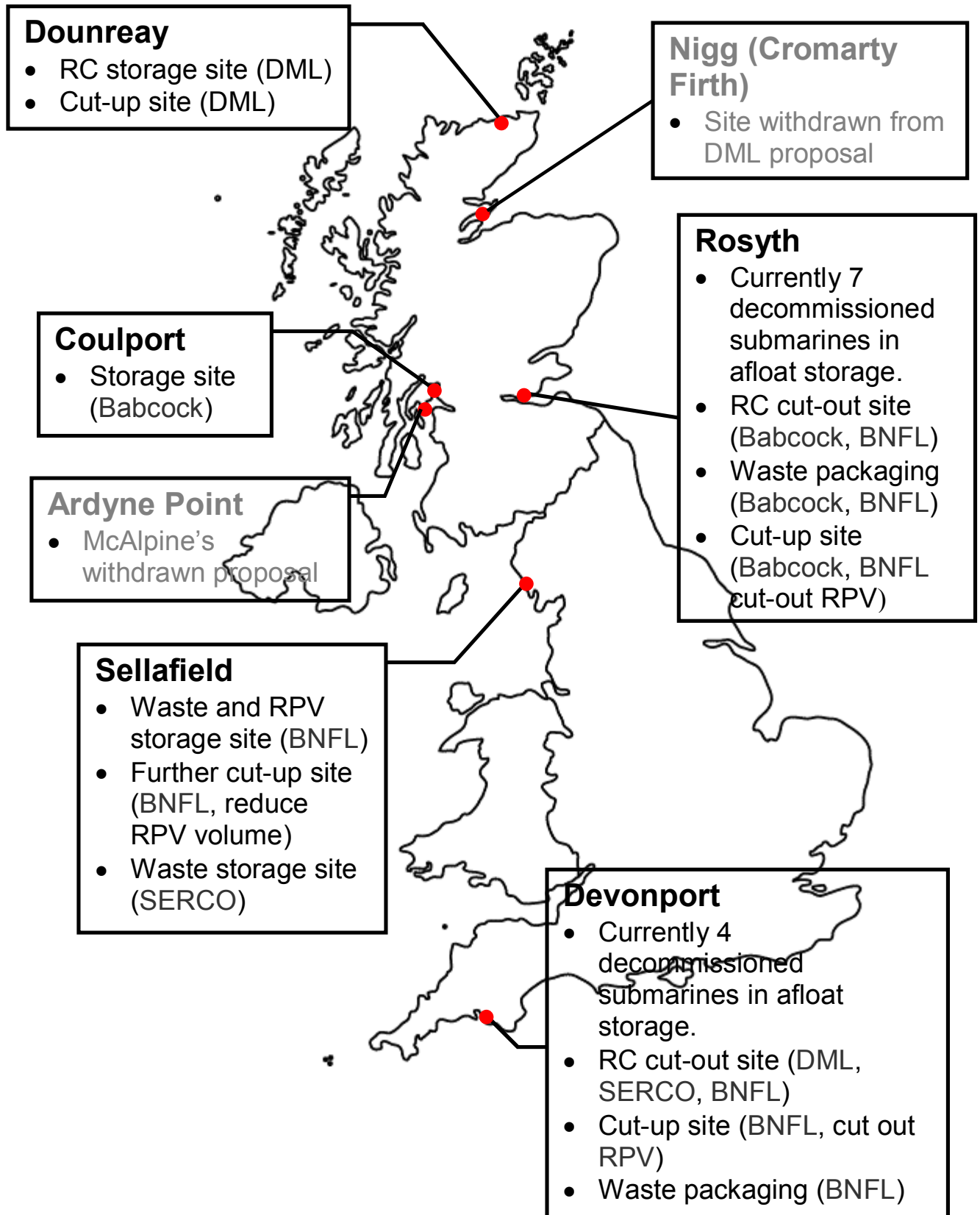
<b>Summary of SERCO proposal</b>	
Consortium includes SERCO Assurance, Parsons Brinckerhoff Ltd and RWE Nukem Ltd	
<b>Option</b>	SERCO present two options: 1) Transport submarines to a site for cutting out the RC. Transport RC by sea and road to an interim storage site. Later, cut up the RCs. 2) Cut up the RCs, package long lived ILW and store on site or, more likely, transport to Sellafield. Process remaining wastes and store on site in a new storage facility or dispatch to a National Waste Repository if it is available. This is SERCO's preferred option.
<b>Siting</b>	No sites are named in this proposal. Sites would be required for Option 1) cutting out the RCs and storing the RCs Option 2) cutting up the RCs, packaging and processing wastes, and storage of long lived wastes and shorter lived wastes.
<b>Transport</b>	Movement of submarines by sea from Rosyth to DML, Plymouth, or elsewhere. Movement of RCs by sea and possibly road to storage and processing site. LLW waste packages to Drigg by road, rail or sea. Although sites are not identified, some transport routes are likely to run through existing centres of population.
<b>Safety</b>	SERCO state that the mechanisms of safety are standard and familiar to them, and that they will comply with all the relevant controls. They state they have a proven track record in this area.
<b>Scrutiny</b>	SERCO state that existing arrangements for scrutiny exist, primarily via the regulatory bodies and independent review. They state their intention to form liaison committees where issues of local concern could be raised by local representatives directly with the company.
<b>Openness</b>	SERCO state that they are committed to and support the need for 'openness, transparency, full stakeholder engagement and public participation' at all stages as the project progresses.
<b>Workforce</b>	SERCO state the skills will be provided by consortium members, the MoD, and the Dockyards. They also state an intention to 'use the local workforce wherever possible'. No numbers are given: SERCO state that 'potential workforce numbers will be established as the project scope is developed'.
<b>Environment &amp; sustainability</b>	SERCO state that the Environmental Impact Assessment will address sustainability and will comply with latest government regulations and good practice guidance.
<b>Development</b>	SERCO state that processing and storage facilities could be used to manage other radioactive wastes.

## Appendix 3: The sites

Site and location	Current use	Existing nuclear activity	Rural/urban	Ownership	Proposed as	Proposer
Ardyne Point Cowal Peninsula, Argyll and Bute	Disused dockyard previously used for fabricating oil rigs	No existing nuclear activity	rural	McAlpine	RC cut out and storage site	McAlpine
<i>McAlpine proposal at Ardyne Point WITHDRAWN</i>						
Coulport near Helensburgh	Nuclear submarine base and weapons store		rural	MoD (Babcock hold management contract)	Storage site for cut up packaged waste	Babcock
Dounreay Caithness	Farmed land adjacent to the Dounreay/Vulcan submarine reactor experimental nuclear site	Adjacent to decommissioning nuclear site	rural	UKAEA (land potentially available on lease)	Storage site for RCs, and eventual cut up and packaging site.	DML

Nigg Easter Ross	Docks previously used for oil rig construction	No existing nuclear activity	rural	Halliburton (also owners of DML)	Cut out site	DML
<b><i>Nigg Site WITHDRAWN from DML proposal</i></b>						
Rosyth Firth of Forth	Existing site for storage of 7 laid up submarines, previously submarine refitting site now being redeveloped as business park	urban	Babcock	Cut up and packaging site	Babcock BNFL	
Devonport Plymouth, Devon	Dockyard with submarine refueling and refitting complex, existing site for storage of 4 laid up submarines. All future submarines are planned to be defuelled and de-equipped at Devonport, prior to decommissioning.	urban	DML (MoD owned land is adjacent)	Cut out site  Cut up and packaging site	DML  BNFL	
Sellafield West Cumbria	Nuclear reprocessing and waste storage site.	rural	BNFL	Storage site for cut up packaged waste	Babcock BNFL	

### UK Map



## Appendix 4: The CIOP Consultation Process

A number of activities took place in this consultation, to try and ensure that anyone who wished to comment had the opportunity to do so, and to actively seek the views of the public.

CSEC have written a report on each of the activities as well as this Final Report on the whole consultation, which makes recommendations to the MoD. Reports are available on this website and by post on request from ISOLUS-CIOP, IEPPP, Furness College, Lancaster University, Lancaster LA1 4YT.

The consultation activities comprised:

**Consultation website:** the website provided information and asked for comments via a discussion page, a questionnaire, email, and a notice board. Printed versions of the information on the website and the questionnaire were available by post on request.

**National Citizens' Panel** met over two weekends, in October and November, to consider the acceptable and unacceptable aspects of the proposals. The panel was made up of fourteen ordinary members of the public. Their only qualification was willingness to participate in the process. One member was recruited from each of the six named sites, and five were recruited from localities in the UK that are directly affected. (CSEC employed a professional recruiter to recruit participants.) A further three members were recruited from people who participated in the ISOLUS Front End Consultation Citizens' Panel.

**National Stakeholder Forum** with twelve members met over two weekends in October and November to consider the acceptable and unacceptable aspects of the proposals. The forum included two people associated with each of the six named sites and/or with environmental/peace NGOs. For each site there was a local authority official or elected local government representative and a person representing a local non-governmental organisation concerned with environmental and/or nuclear-powered submarine issues.

Two **Discussion Groups** of eight participants were conducted at each of the six named sites. Participants were recruited to reflect a mix of different sorts of people. A professional recruiter was employed to recruit all discussion group members. Each discussion group was three hours long, allowing time for the participants to find out about the proposals, discuss the issues, and express views about the proposals.

**Public Open Access Events** took place near to proposed sites. These were open to anyone who wishes to participate. The CSEC team organised these events in collaboration with local authorities, with the exception of Plymouth City Council who did not wish to be involved. The events were advertised in the local areas concerned as well as on the consultation website. All events included an exhibition during the afternoon, followed by a public meeting in the evening.

A range of **National Stakeholders** were contacted by post and invited to express opinions. These included environmental non-governmental organisations, the nuclear industry, regulators and conservation organisations.

**Front End Consultation participants** were contacted by post to inform them of the new phase of consultation and to invite them to express their views via the website or by post.

## Appendix 5: Project ISOLUS

The MoD state that:

“MoD policy for decommissioned submarines that have left naval service is to undertake a Defuel, De-Equip and Lay-up Preparation (DD&LP): the reactor is de-fuelled at the earliest practicable opportunity and the fuel removed for long-term storage at BNFL Sellafield. The work of the ISOLUS project is not therefore concerned with reactor fuel, but the residual irradiated steel is classified as Low and Intermediate Level Waste (there is no High Level Waste) that has to be dealt with accordingly, and then to hold them safely in afloat storage prior to break-up and disposal of the radioactive waste at a national facility. The submarines, minus their fuel, are stored afloat and regularly inspected and maintained to ensure that their material state, and particular their pressure hulls, remain sound. The pressure hull provides robust shielding of the remaining irradiated steel and ensures that the radioactivity on the outside of the submarine is so small that it is not measurable against normal background radiation levels. Standing outside the hull of one of the de-fuelled submarines continuously for 20 days has the same effects as flying to California once. Afloat storage therefore presents no hazard to the workforce, general public or surrounding environment, offered the MoD a safe and relatively inexpensive method of storing decommissioned submarines, which has the added advantage of reducing the amount of Intermediate Level Waste to be disposed of through the process of natural radioactive decay.

The UK’s policy for radioactive waste is currently under review<sup>6</sup> and a national ILW management facility is now not expected until at least 2050. This, combined with a lack of further afloat storage space beyond 2012, led to a reassessment of the situation. In 1998 the Under Secretary of State for Defence authorised a study into the interim storage of laid-up submarines (“The ISOLUS Investigation”<sup>7</sup>). This recommended that an interim land storage strategy, based around 60 years storage before disposal, and not dependent on the realisation of a national ILW facility, was the most viable option and should be pursued. In May 2000, the MOD announced that the recommendations of the study had been accepted and Project ISOLUS was formally established. No preference was given as to the form of storage ie Reactor Compartments, Packaged Waste or Unpackaged Waste (RPV's).

The Single Statement of Need for the ISOLUS Project is:-

*“Define, develop and procure a safe and publicly acceptable method for the disposal of nuclear powered submarines removed from service with the Royal Navy, including the final disposal of any Low Level Waste, and the interim storage of any Intermediate Level Waste until such time as a national facility becomes available”*

The MoD currently has 27 nuclear submarines, of which 11 have left naval service and been de-fuelled and decommissioned (7 are currently in afloat storage at Rosyth, and 4 at Devonport), and has ordered 3 ASTUTE class vessels with options for further purchases. For each de-fuelled and decommissioned submarine the greater part of the

---

<sup>6</sup> DEFRA Consultation Paper: Managing Radioactive Waste Safely, Sept 2001

<sup>7</sup> The ISOLUS Investigation: Concept Phase Report - Issue 1 dated 26 May 1999

pressure hull and internal structure has no measurable activity and is not classified as radioactive waste, meeting free release standards. Furthermore, the majority of a submarine's radioactive fittings would be classified as either Low Level Waste or meet free release standards within one year of reactor shutdown. At shutdown, each submarine contains around 82 tonnes of ILW. After a storage period of 30 years, radioactive decay will have reduced this to about 18 tonnes.

Consultation with the public and groups with a vested interest, such as nuclear regulators, local authorities and environmental groups is seen as central to the Project's development.”

## Appendix 6: Acronym List

BNFL	British Nuclear Fuels Ltd
BPEO	Best Practicable Environmental Option
BRDL	Babcock Rosyth Defence Ltd
CIDI	Central Index of Dose Information
CIOP	Consultation on ISOLUS Outline Proposals
CoRWM	Committee on Radioactive Waste Management
CSEC	Centre for the Study of Environmental Change
Defra	Department of Environment, Food and Rural Affairs
DML	Devonport Management Ltd
DTI	Department of Trade and Industry
EA	Environment Agency
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
ENGO	Environmental Non-Governmental Organisation
FEC	Front-End Consultation
FSA	Food Standards Agency
HMS	Her Majesty's Ship
HMSO	Her Majesty's Stationery Office
HSE	Health and Safety Executive
IEPPP	Institute for Environment, Philosophy and Public Policy
ILW	Intermediate Level Waste
IRR	Ionising Radiations Regulation
ISOLUS	Interim Storage of Laid-Up Submarines
ISOPS	Invitation to Submit Outline Proposals
LLC	Local Liaison Committee
LLW	Low Level Waste
LMU	Liabilities Management Unit
LU	Lancaster University
MNS	Mowlem Nuclear Services
MoD	Ministry of Defence
MP	Member of Parliament
NCP	National Citizens' Panel
NDA	Nuclear Decommissioning Authority
NF	National (Stakeholder) Forum
NGO	Non-Governmental Organisation
NIA	Nuclear Installations Act (1965)
NII	Nuclear Installations Inspectorate

NRWMF	National Radioactive Waste Management Facility
OGDs	Other Government Departments
PCSG	Project Consultation Steering Group
RC	Reactor Compartment
REPPIR	Radiation Preparedness and Public Information Regulations
RPV	Reactor Pressure Vessel
RSA	Radioactive Substances Act (1993)
RWMAC	Radioactive Waste Management Advisory Committee
SDR	Strategic Defence Review
SEPA	Scottish Environmental Protection Agency
SG	Steering Group
UK	United Kingdom
UKAEA	United Kingdom Atomic Energy Authority
US	United States
USofS	Under Secretary of State
WSA	Warship Support Agency