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## HIGHPORT 2005 – NNRP ASSESSMENT

### References:

- A: Loch Ewe On-Site Operator's Emergency Plan issued by HMNB Clyde
- B: Broadford On-Site Operator's Emergency Plan issued by HMNB Clyde
- C: Highland Safety Scheme issued by Highland Council (Jan 05)
- D: JSP471: Defence Nuclear Accident Response
- E: JSP518: Regulation of the Naval Nuclear Propulsion Programme
- F: Radiation (Emergency Preparedness and Public Information) Regulations 2001
- G: HMNB Clyde's 252/6/10 dated 5 Apr 05

1. Highport 05 was a Grade B test of the arrangements and facilities that support the operator's emergency plans for the Loch Ewe and Broadford Z berths (References A and B), together with aspects of the local authority off-site plan (Reference C). The test was conducted over the period 10-12 May 2005 in accordance with the requirements at References D-F. The assessment was carried out jointly by NNRP and HSE/NII, with NNRP leading in respect of the operator's response (including the support provided to the off-site plan). This report constitutes the assessment of these aspects of the response. HSE/NII will provide a separate report on the off-site plan to the local authority.

2. The use of a modular approach to the test of the plans raised particular requirements for clarity in terms of the scope of the exercise, its detailed objectives, and those aspects of the response for which credit was taken from other exercises. Although an Exercise Order was issued (Reference G), no substantive submission was made in this regard, and regulatory agreement to the objectives was not achieved. However, it was concluded that the exercise provided an adequate test of the operator's emergency plans overall, although further evidence is required in particular areas.

3. The detailed assessments are at Annexes A and B. A number of areas for improvement were identified, and these are summarised at Annex C. In general, the arrangements presented at the test, via a process of iteration in some cases, significantly exceeded those documented in the plans. Substantial amendment to the plans is therefore required in order to provide essential clarity and consistency and more clearly to reflect the arrangements which were presented. Once amended, the plans need to be subject to an

appropriate due process, including formal statutory consultation with external authorities in accordance with the requirements of Reference F (and Reference E).

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4. Notwithstanding the detailed findings in the Annexes, the overarching NNRP expectations in respect of corrective action are as follows:

a. A formal process to be followed to gain regulatory agreement to the exercise scope and objectives prior to any future exercise or modular test.

b. A submission to be forwarded to NNRP identifying the key aspects of the response and how they have been tested in respect of each berth, in order to demonstrate compliance with REPPIR requirements – by end of Sep 05.

c. Amendment of the Loch Ewe and Broadford Bay operator's plans to be completed by end of Dec 05.

d. A robust communications plan is needed at both Loch Ewe and Broadford Bay that adequately covers both initial alerting and the ongoing response. These communications to be comprehensively tested prior to the next submarine visit and a report of the test to be forwarded to the NNRP.

e. The lessons learned from this test in terms of the documentation of the arrangements to be read across to the plans for other locations (eg Falkland Islands, Clyde area Z berths) prior to any tests of those plans.

5. Recognising that NII is the enforcing authority for the REPPIR regulations, responses to 4b & 4d should also be formally forwarded directly to NII. In addition, as required by REPPIR Reg. 7(6), NII will need to be formally consulted as part of the review and formal consultation on operator's plans (paragraph 4c).

6. While recognising that REPPIR reports of assessment have recently been re-submitted, it is essential that efforts continue with a view to demonstrating that a radiation emergency is not reasonably foreseeable in the case of short-term operational visits to Z berths where the NRP remains intact. The NRP Authorisee-designate (NRPA) needs to take a key role in this and continuation of the REPPIR Steering group could possibly be a vehicle to drive this forward.

7. Naval Base Commander Clyde supports the NRPA in preparing and maintaining these operator's plans and therefore this assessment is issued to both NBC Clyde and NRPA.

8. Finally, this was the first occasion on which a modular approach has been taken to testing the arrangements, this being necessitated by the commonality of a number of aspects of the response across a number of different plans. Despite the difficulties encountered, the outcome represented a significant step forward from the previous exercise with a large number of potential improvements identified, and full credit is due for the progress which has been made, for the very close working relationships with the civil authorities which were evident, and for the enthusiasm and professionalism demonstrated by all participants over the three days.

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## **TEST OF THE OPERATOR'S EMERGENCY PLAN FOR LOCH EWE – NNRP ASSESSMENT**

### **Introduction**

1. The test of the arrangements on the ground was carried out on 11 May 05, supplemented by a table-top exercise of the operational, tactical and strategic levels of the response the previous day.
2. Except where indicated, the comments relate to the alongside berth, but in general should be read across to the buoy also.
3. In the absence of agreed objectives for the exercise, this assessment does not focus on these objectives in the usual way. Instead, comments are provided in respect of key aspects of the response. In addition, comments were provided on the documented arrangements prior to the test. These are included at Annex D for completeness.

### **Alerting**

4. The arrangements which were described for alerting from the submarine to the collocated team, HMNB Clyde and the emergency services etc appeared to be sustainable, but this is contingent upon the adequacy of the communications links. These were not tested in the exercise, nor do the plans include a comprehensive communications plan. Reference was made to a number of separate systems (including radio and mobile telephones) but the degree of inter-operability of the systems was not clear, and difficulties with mobile networks in particular were clearly evident. Accordingly, a comprehensive and robust communications plan is required, covering both initial alerting and the on-going response, and this should be tested prior to the next submarine visit. A report of the test is to be forwarded to NNRP.

### **Protection of the submarine crew**

5. Vehicles are provided by the Depot for crew evacuation but these are not mentioned in the plan. These would also provide a means for transporting any casualties to the Depot for initial treatment pending handover to the ambulance service.
6. Evacuation of the crew is to an Exclusion Zone Reception Centre in the Depot. Manning is by one of the collocated team initially, supplemented by self-help from the submarine crew. The facilities and procedures are fit for purpose given the constraints.
7. It is understood that no control is exercised over the orientation of the submarine at the berth so that in the event of an accident, access and egress could involve having to pass very close to the reactor compartment. Additional controls should be considered, with the submarine orientation, brow locations, access and egress routes etc balanced against other constraints. Berthing with the bow facing northwards would appear to offer egress advantages in the event of an accident, but this needs balanced consideration.
8. A nuclear safety tug is maintained immediately available during a submarine visit which is clearly of critical importance for a submarine at the buoy, but again this is not mentioned in the plan. There is also an alternative EZRC in Mellon Charles for use in this case. This alternative facility was

not tested or presented, nor is it clear that a separate facility is required given the availability of transport. This needs to be clarified.

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### **Jetty and Depot area**

9. Although there is repeated reference in the plan to a 500/550m Automatic Countermeasures Zone (ACMZ) and associated automatic countermeasures, it is not clear that any such controls are implemented, practicable or indeed necessary. Specific management arrangements are however required in those areas which are under MOD control, ie the jetty area and the Depot, which should set out the action to be taken and the arrangements for protecting any personnel who remain. This is currently not addressed. The facilities and capability provided by the Depot (and jetty) also need to be covered.

### **Provision of initial public protection advice**

10. As documented at Annex D, the initial advice provided to the police by the operator (ie HMNB Clyde MOC) is not consistent with the off-site plan, and therefore requires amendment. This covers both the area affected and PITs. It is understood that PITs have been pre-distributed. Plans need to make this clear together with the geographical area and, given the awareness of these tablets in the locality, both the initial operator's advice provided to the police and the pre-scripted public safety statement need to provide guidance in this regard. Describing the hazard area in terms of a 2 km zone is also not helpful – it would be much better under the circumstances to refer explicitly to the actual localities, eg Aultbea, Mellon Charles.

### **Access control**

11. The collocation team includes 3xMDP to set up initial road blocks on the access roads in support of the police. This therefore provides a very rapid means for preventing access to the area, but the MDP staff involved are likely to be at the front line in dealing with the public and need guidance on the information to be provided. Clearly this should be consistent with the public safety statement issued by the police.

12. Once relieved by the police, MDP would be available to provide additional support as required, including for example a loud-speaker vehicle which could be used to provide immediate public safety information in the local area.

13. The nuclear safety tug is also always immediately available to patrol the seaward side of the hazard area, or to provide other support as required. This needs to be included within the documented plan.

### **Monitoring**

14. This comprises a standard collocated monitoring capability, ie a monitoring HQ in the Depot and a field monitoring vehicle. TRAMS is also installed, reading out in the HQ. Monitoring can be carried out on-board the tug should the wind direction be towards the sea. However, as TRAMS is not water-resistant, it cannot be deployed if the buoy is being used. Monitoring would therefore have to be undertaken by personnel approaching by boat using portable devices. Dose assessments for this activity would have to be performed dynamically as personnel approached the submarine.

15. All procedures were in accordance with standard protocols and, while limited in scope, the monitoring capability overall was fit for purpose.

16. The closest planned monitoring support is at HMNB Clyde, a journey of several hours. Consideration should be given to seeking such support from Vulcan/Dounreay which is much closer.

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### **Command and control**

17. An office within the Depot serves as a mini-NAHQ, housing the collocated Technical Adviser (TA) and Health Physicist (HP), subsequently the submarine executives also. Given the inward-looking focus of this group, ie on the safety of the crew, accident mitigation etc. they are clearly best located within the Depot, adjacent to both the monitoring information and the rest of the submarine crew who would provide the principle manpower resource. This group is also well placed to act as a Forward Control Point, providing specialist briefing, management and protection for any access to the jetty area (including by emergency services etc).

18. Given that the Depot is within the pre-designated 2 km hazard zone, there are major doubts over whether the police will attend this facility, even if safety assurances can be provided. In view of the inward-looking responsibilities of this group this separation would appear to be sustainable, although clearly good communication links would be required with the Police Incident Officer wherever he does locate himself (presumably adjacent to one of the road blocks).

19. Land-line availability at the Depot appears to provide adequate communications for this purpose and for the key communications link with HMNB Clyde, NARIMS etc. Support and advice to Strategic in Inverness is from the Naval Base rather than from the collocated team.

20. The command and control concept therefore appears to be sustainable, but little of this is currently documented in the plan. There are also difficulties with the terminology which is used, with terms such as Forward Control Point, Access Control Point, Rendezvous Point and Outer Cordon being used interchangeably and without definition, while the mini-NAHQ in the Depot is not identified as a key command and control facility at all.

21. A key finding from the last exercise was the ill-definition of the MOD Incident Commander responsibility. This has been resolved, with the submarine CO acting as IC other than during his evacuation when it is transferred to the collocated TA. While the CO clearly has specific responsibilities in relation to the submarine both before and after any evacuation it is not clear that these correspond with the MOD IC responsibilities post-accident. These include detailed familiarity with the operator's emergency plan in particular, the protection of personnel ashore, the management of interventions in accordance with the detailed REPPIR requirements (see below), the provision of updates to HMNB Clyde, liaison with the police and other external authorities, communications etc. It is not clear that the submarine CO is best placed to discharge these responsibilities, which may be more appropriately assigned to the collocated TA.

### **Management of interventions**

22. The plan identifies the submarine crew as the principal intervention resource but it is not clear that they have been trained for this role in accordance with REPPIR requirements. Further, the submarine CO (as the MOD IC) is identified as the authorising authority for emergency exposures but again the training for this role in accordance with REPPIR requirements is questioned.

23. The nuclear safety tug provides an additional intervention resource but the management arrangements for these personnel described in the plan (ie authorisation by their own line management) is clearly not sustainable in this circumstance. It is understood that this responsibility has been delegated to the MOD IC in the case of Clyde area berths, and similar arrangements are required for these remote berths. With the submarine moored at the buoy the nuclear safety tug has a

key intervention role and the actions required of the tug crew (e.g. recovery of evacuating personnel at Cat 2) should be carefully considered to ensure that they are achievable within their intervention dose limits.

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**TEST OF THE OPERATOR'S EMERGENCY PLAN FOR BROADFORD – NNRP  
ASSESSMENT**

1. The test of the arrangements on the ground was carried out on 12 May 05, supplemented by a table-top exercise of the tactical and strategic levels of the response earlier in the week.
2. The documented arrangements for Broadford mirror those for Loch Ewe, and the arrangements presented on the ground also very largely mirror those at Loch Ewe. The Loch Ewe assessment should therefore in general be read across to the Broadford arrangements, including those for the buoy given that the Broadford berth is at a buoy some 1 km off-shore. There is no alongside berth in this case.
3. The following additional comments relate to the Broadford berth:
  - a. The mini-NAHQ, EZRC, and monitoring HQ are all located at Broadford Fire Station. Again, this is within the 2 km hazard zone so that the same concerns arise in relation to police collocation. In this case there is only a single land-line available, therefore placing even greater strain on other communications links.
  - b. The collocation team for Broadford does not include the 3xMDP who would deploy for Loch Ewe despite similar overstretch on the police in the initial stages. The provision of this support to Broadford should be re-considered.



**EXERCISE HIGHPORT 05 – AREAS IDENTIFIED FOR IMPROVEMENT**

<b>Serial</b>	<b>Aspect</b>	<b>Para</b>
1	The process for gaining prior regulatory approval for the exercise scope and objectives	4a
2	Submission identifying key aspects of the response and how they have been tested in respect of each berth - required by end of Sep 05	4b
3	Operator's plans to be amended as indicated in the detailed reports - required by end of Dec 05	4c
4	Operator's plans to be subject to due process, including formal and statutory consultation	3
5	Lessons learned from this exercise to be read across to plans for other locations prior to any exercises of those plans	4e
6	Hazard identification and risk evaluation for short-term operational visits to Z berths to be reviewed with a view to demonstrating that a radiation emergency is not reasonably foreseeable under these circumstances	5
7	A comprehensive and robust communications plan is required in respect of each berth, to be tested and reported prior to the next submarine visit	4d & Annex A para 4
8	Control of the orientation of the submarine should be considered	Annex A para 7

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## **LOCH EWE AND BROADFORD BAY – DOCUMENTED EMERGENCY ARRANGEMENTS**

### **Off-site plan**

1. These comments relate to the Highland Safety Scheme (Highsafe) dated Jan 05.
2. Although the regulation of the off-site arrangements is a matter for NII, some observations on the off-site plan will provide a context for consideration of the associated Operator's plans.
3. The public protection arrangements are set out at Sections 4.1 and 4.2. The pre-scripted (and agreed) media statements in Section 6 are also relevant. Although not definitive, the plan appears to be automatic shelter throughout the whole of the 2 km zone at Cat 1. In parallel, the police and local authority at Strategic will consider the practicality of precautionary evacuation. PITs appear not to be automatic but to be subject to NHS Highland authorisation, again from Strategic. There are references to the tablets having been pre-distributed, but also to them being issued if required from stocks held by the collocated team. However, there is no mention of any associated distribution arrangements. Thus PITs arrangements need to be clarified.
4. The 2 km zone is treated as the hazard zone, with road blocks established as necessary. The collocation team includes MDP personnel to assist the civil police in the early stages in setting these up. Access to the hazard zone is managed from a Forward Control Point which is set up in a pre-designated car park/lay-by under the control of the police, with support provided by the collocated health physicist, and using Permit-to-Enter procedures (Sections 4.3 and 5.1).

### **Operator's plan – Loch Ewe**

5. There are two berths, one alongside the NATO Pol Jetty and an anchorage some 500m off Mellon Charles. The alongside berth is ~1 km from the NATO Pol Depot.
6. Protection of the crew – this should be a fundamental objective of the plan (REPPiR Sch 7 Part 1d). While there is reference to their processing within one of two designated EZRC, there is no description of these facilities/manning etc. More significantly, there is no indication of how the crew reach the shore in the case of the anchorage.
7. Public protection advice – this document is required to set out how the Operator alerts and supports the civil agencies in the early stages, in particular the information to be provided initially in support of implementation of the off-site plan (REPPiR Sch 7 Part 1e). There are difficulties in this area. Thus para 02.16 mis-represents the initial public protection advice in terms of precautionary evacuation. Further, the MOC arrangements for providing advice on public protection documented at Annex B to Section 3 specifically contradict both this mis-representation and the actual public protection arrangements contained in the off-site plan. There are additional difficulties and contradictions in the Table of countermeasures and responsibilities in Section 5, and references to on-site and the ACMZ are not particularly meaningful in the context of these berths
8. Integration and co-ordination with the police – the off-site plan makes clear that the focus of the police Operational level of command will be the Forward Control Point, and it will be from here

for example that the Permit-to-Enter procedures for the hazard zone will be managed. This will require face-to-face support from the collocated team. In contrast, the Operator's plan (in the respective desk instructions) refers to the collocated health physicist working from Loch Ewe police station, and the technical adviser from the NATO Pol Depot. Accordingly, the arrangements for coordinating the Operational level of the response are not clear. Further, if it is intended to co-locate the MOD personnel with the police at the Forward Control Point, a suitable facility will need to be available if this is to be sustainable. (This was a finding from the last exercise.)

9. Management of interventions – it is not clear how the process set out here is integrated with the arrangements set out in the off-site plan for the police to authorise all entries to the hazard area, or how the process is intended to operate given the locations of the submarine crew (who would in general be the principal source of intervention personnel), the Forward Control Point, the IC and Health Physics Adviser, EZRC etc. The procedure is very much a cut-and-paste from arrangements elsewhere, which have presented difficulties when exercised elsewhere. It needs to reflect the specifics of the local arrangements to have any chance of being sustainable. Further, it is noted that there is a blanket assumption that submarine crews and COs are adequately trained for their roles in relation to interventions, as required by REPPIR. This requires justification.

10. More detailed comments:

- a. the copy of the plan provided bears no Issue No or date;
- b. the pre-scripted media statement at Annex E to Section 3 is not consistent with those in the off-site plan;
- c. para 04.16 refers to the availability of safety equipment for purposes of mitigation, as required by REPPIR Sch 7 Part 1c, but locates it at Broadford Bay. The availability of such equipment needs to be confirmed;
- d. para 06.29c – there is no estuarine dispersion model for Loch Ewe;
- e. the document contains two different Permit-to-Enter forms, one in Section 7 and one following the desk instructions. Neither have provision for authorisation by the police as detailed in the off-site plan.

### **Operator's plan – Broadford Bay**

11. As for Loch Ewe above. (The berth is an anchorage ~1 km off shore.)