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Tuesday, January 23, 2001

Full Statement from Gibraltar Government

MEMORANDUM FROM THE NUCLEAR SAFETY ADVISORY PANEL

6TH PROGRESS REPORT ON THE DEFECT REPAIRS TO HMS TIRELESS

Dear Chief Minister

The Panel met with the Ministry of Defence (MoD) and members of Rolls Royce Naval Marine (RRNM) staff at RRNM Derby on 19 January 2001. As set out in the Addendum to the 5th Progress Report, this report relates the Panel's confidence in the repair and non destructive examination (NDE) proceeding to the one-third weld fill stage. A further report, which is to include the final stage to die full-fill weld, will be issued on 30 January 2001.

The Panel was allowed access to the nuclear safety case documentation prepared by RRNM. The MoD deemed it necessary to hold back certain, detailed information relating to the SSN flotilla and to obliterate certain performance details of the reactor plant. However, where further information was required the topic was talked through with the appropriate MoD personnel. In the few instances where further information was sought, the Panel experienced no procedural difficulties and sufficient information was made available for the Panel's assessment to proceed unimpeded. The Panel held extensive discussions with the Royal Navy nuclear regulator (CNNRP) and engineering and technical staff of RRNM. In attendance throughout the meeting was a senior technical advisor to the Director of Nuclear Propulsion (ONP).

With regard to the weld and NDE processes proceeding to the one-third weld fill stage, the Panel is confident that:

- 1) RRNM have now sufficiently schemed, practised and proceduralised the welding process to demonstrate that the one-third weld is reliably achievable, first in the workshop, then on Torbq and then on

workshop, then on Torbay and then on Tireless;

2) similarly, the NDE techniques are sufficiently developed to ensure that most defects in the weld fused material will be detected at each stage of the weld make-up, that is from the root-fill progressing through to one-third fill; and

3) although there is high confidence that most weld defects, if these exist at all, will be detected by NDE, RRNM analysis allows for the presence of weld defects that are significantly larger than the smallest that the NDE is reliably capable of detecting.

The Panel is satisfied that the allowance for inclusion of (hypothetical) detectably-sized defects (Item 3 above) provides a sufficient margin of assurance to compensate for any weld defects that do actually pass through the weld NDE process undetected.

Although this reporting stage addresses the repair activities up to one-third fill, the Panel also considers the whole of the repair process to have been sufficiently developed and practised. Also, the Panel is satisfied that CNNRP have in place sufficient hold points following one-third fill to check progress should any unsatisfactory feature of the weld arise and, accordingly, the Panel considers that the weld should now proceed to full-fill. Overall, the Panel has increased confidence in the totality of the repair scheme and its NDE to produce a reliable weld.

That said, there are a number of technical matters that need to be resolved, these include:

- a) the RRNM presentation of the levels of residual stress remaining in the weld at the time of the hydro test and power operation;
- b) the allowable spatial tolerances for the coplanarity of the swept branch connector and surge/main circuit pipework, and for the inclusion of this effect in certain aspects of the safety case;
- c) the final validation of the underside weld surface finishing technique and the quality of surface finish achieved; and
- d) full access by the Panel to the NDE records for the workshop standard, Torbay and Tireless at completion of the stages of the welds;

the welds;

These matters are to be resolved by correspondence within CNNRP before finalisation of the Panel's Interim Report of 30 January.

On the repair programme progress the Panel notes:

i) Torbay - Lead Boat to One-Third Fill Stage

Whereas previously the MoD programme included for the one-third weld to be completed on Torbay before welding commenced on Tireless, the schedule has been revised so that the one-third weld fill is to be further broken down into two parts. For the first part, the root fill weld runs will be completed, with NDE, on Torbay and then if the Torbay weld root fill is shown to be satisfactory, the root fill will be undertaken on Tireless. Similarly, the second part of welding up to one-third fill will be completed first on Torbay', again with NDE, and then on Tireless.

The Panel noted to the MoD that although up to one-third fill Tireless would be preceded by a satisfactory achievement on Torbay, the time available for examination and consideration of the Torbay NDE would be now short, adding that any delay encountered with Torbay will inevitably and almost immediately reflect as a delay to the progress of Tireless.

ii) Tireless - Lead Boat from One-Third Fill Stage to Full Weld

For the completion of the weld, From one-third to full-fill and for the surface finishing of the underside of the weld, Tireless will become the 'lead boat' and comparison with Torbay will cease. From this stage onwards the Tireless- full fill weld, its NDE and surface finish will be compared to the workshop standard welded assembly which is presently under preparation at RRNM Derby.

iii) Welders and Site Supervisors, Etc Resource

The Panel was informed that the number of welders and site supervisors now qualified are sufficient for the repairs to Torbay and Tireless to proceed and complete to schedule.

The Panel recommends:

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i) Weld Progressing up to One-Third Fill Stage

The Government of Gibraltar notes the Panel's confidence (Items 1, 2 and 3) in the welding and NDE processes to be undertaken to one-third weld fill stage.

ii) Weld Progressing through to Full-Fill

The Government of Gibraltar takes into account the Panel's improved confidence in the totality of the repair scheme and its opinion that it will not be necessary to interject a Hold Point at completion of/re one-third fill stage.

iii) Checks and Cross Checks - outstanding Issues

In accepting Recommendations i) and ii) above, the Government of Gibraltar support the Panel's requirement of being provided with sufficient information and access to resolve the outstanding issues of Items a), b), c) and particularly the NDE certificates and radiographs of d), preferably in good time for its 30 January Interim Report but very definitely before the repair activity moves beyond Hold Point C to hydro testing.

iv) Potential For Further Delays to the Repair Activity

That the Government of Gibraltar notes the panel's concerns that should the repairs to Torbqy, or the development of the workshop standard, be further delayed this will narrow the lead time afforded to Tireless.

Unless directed otherwise, the Panel will now move towards preparing and issuing its interim Report on or about 30 January 2001.

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