ENCLOSURE 1 TO
NSAM's N.2522/41
DATED 02 OCT 07

REVIEW OF HMNB CLYDE NUCLEAR SAFETY EVENT REPORTS 01 JUN 06 – 31 MAY 07

INTRODUCTION

1. This report reviews the Nuclear Safety Event Reports (NSERs) raised within HMNB Clyde during the period 01 Jun 06 – 31 May 07 and identifies, where possible, trends in nuclear and radiological events which took place during that period.

REVIEW OF EVENT REPORTS

2. A total of 100 NSERs were raised during the reporting period. Currently, 58 have been closed following confirmation that remedial actions have been satisfactorily implemented and 42 remain either under investigation or awaiting confirmation that actions have been completed. In addition, 16 NSERs are still awaiting closure from previous reporting years.

3. Trend analysis has been conducted focusing in particular on the Categories of NSE, Systems Affected and Failure Modes. The Failure Modes chosen are Operator Error, Procedure Error, Equipment Failure, Others and Submarine Incident Reports.

4. A list of all NSERs reported during this period is attached at Annex A. Categories, assigned by the Vessel Support Co-ordination Meeting, are included. A précis of each event outlining a summary of the event, findings, actions taken and lessons learnt has already been widely circulated during the reporting year.

5. A list of NSERs raised in conjunction with Submarine Incident Reports (IRs|) during this period is attached at Annex B.

6. A list of significant "Lessons Learnt" from the NSERs raised during this period is attached at Annex C.

DISCUSSION

5. The total number of NSERs (table 1) raised during the reporting period has increased by approximately 55% compared to last year. This increase was anticipated following the inclusion of electrical Shore supply losses (32 NSERs raised during the reporting period) into the event reporting system.

Table 1 - Number of events reported

PERIOD	TOTAL No
Jun 06 – May 07	100
Jun 05 – May 06	71
Jun 04 – May 05	79
Jun 03 – May 04	61
Jun 02 – May 03	41
Jun 01 – May 02	39
Jun 00 – May 01	35

NOTE: An additional 5 events (NSER D/192, D/193, D/213, D/214 & D/219) were reported and entered as NSERs but were processed under separate Strategic Weapon System procedures.

6. Analysis by Category of NSERs raised during last 6 years is shown in Table 2. The interpretation of Category is considered to have influenced the statistics more than the trend.

7. As anticipated there was an increase in CAT D events due to loss of shore supplies being incorporated as an NSER and a corresponding rise in Operator Error initiating events. As a consequence of this, the year's statistics continues to follow a more predictable pattern, mainly due to the 32 NSERs raised due to loss of shore supplies (30 x Cat D, 2 x Cat C). However, it is still considered that many of the least significant Events (Cat D) are failing to be being captured.

Table 2. – NSERs by Category

	A	B	C	D	Total
Jun 06 – May 07	1 (1%)	20 (20%)	40 (40%)	39 (39%)	100
Jun 05 – May 06	0 (0%)	22 (32%)	32 (45%)	16 (23%)	71
Jun 04– May 05	14 (18%)	31 (39%)	26 (33%)	8 (10%)	79
Jun 03– May 04	8 (13%)	17 (28%)	32 (52%)	4 (6%)	61
Jun 02 – May 03	2 (5%)	17 (41%)	22 (54%)	0 (0%)	41
Jun 01 – May 02	7 (18%)	18 (46%)	11 (28%)	3 (8%)	39
Jun 00 – May 01	0 (0%)	19 (54%)	15 (43%)	1 (3%)	35

(The numbers in brackets give the figure as a percentage of the total for that particular year).

Categories A – D are applied in terms of potential for radioactive release.

CAT A – High Potential for actual radioactive release to the environment.
CAT B – Actual or potential for a contained release within building or submarine.

CAT C – Potential for future release by failure to adopt good practice and continuous improvement.
CAT D – No or little potential for release

The level of investigation is determined by the severity of the category:

Category	Level of Investigation
A	BOI/SI
B	BOI/SI/RCA (as appropriate)
C	RCA / TM (as appropriate)
D	TM

BOI/SI - Board of Inquiry/Special Investigation
RCA - Full Root Cause Analysis Investigation
TM - Trend Monitoring – Basic Investigation

8. Systems Affected. Analysis of the systems affected of the NSERs raised is given in Table 3 below; an increase in radiological Events is noted (see Para 12).

Table 3 – NSERs by System

	Electrical	Mechanical	Radiological	Admin	Berthing	Contractors	Maintenance	Others	Total
Jun 06 – May 07	46 (35%)	28 (21%)	18 (14%)	18 (14%)	4 (3%)	3 (2%)	10 (7%)	5 (4%)	132
Jun 05 – May 06	21 (25%)	16 (19%)	10 (12%)	14 (16%)	8 (9%)	2 (2%)	7 (8%)	8 (9%)	86
Jun 04 – May 05	17 (18%)	11 (12%)	20 (21%)	16 (17%)	8 (9%)	12 (13%)	5 (5%)	5 (5%)	94
Jun 03 – May 04	11 (13%)	10 (12%)	16 (19%)	17 (21%)	7 (8%)	9 (11%)	7 (8%)	7 (8%)	84
Jun 02 – May 03	6 (13%)	6 (13%)	7 (15%)	12 (26%)	2 (4%)	4 (8%)	2 (4%)	8 (17%)	47
Jun 01 – May 02	1 (2%)	14 (23%)	21 (35%)	14 (23%)	3 (5%)	2 (3%)	1 (2%)	4 (7%)	60
Jun 00 – May 01	2 (6%)	7 (20%)	14 (40%)	5 (14%)	2 (6%)	1 (3%)	0 (0%)	4 (11%)	35

9. The NSE report form allows for more than one 'system affected' to be assigned to an event. Consequently, the total number of 'systems affected' exceeds the total number of Nuclear Safety Events raised.

10. Failure Modes. The split of NSERs by Failure Modes in Table 4 shows that Operator Error accounted for 41% of NSERs raised. The breakdown of the Operator Error failure modes reveals the following areas that were involved in the reports:

a. HM Vessels 28 (18) (Last years numbers in brackets)
b. Contractors 2 (2)
c. SFM Clyde 5 (9)
d. FD/Design 3 (2)
e. Jetties 3 (2)

Table 4 – NSERs by Failure Mode

	Equipment Failure	Operator Error	Others	S/M Incident Reports	Procedure Error	Total
Jun 06 – May 07	24 (24%)	41 (41%)	12 (12%)	13 (13%)	10 (10%)	100
Jun 05 – May 06	18 (26%)	33 (46%)	7 (10%)	3 (4%)	10 (14%)	71
Jun 04 – May 05	10 (13%)	34 (43%)	9 (11%)	11 (14%)	15 (19%)	79
Jun 03 – May 04	6 (10%)	40 (66%)	3 (5%)	7 (11%)	2 (3%)	61
Jun 02 – May 03	11 (27%)	16 (39%)	5 (12%)	0 (0%)	6 (15%)	41
Jun 01 – May 02	6 (15%)	22 (56%)	0 (0%)	1 (3%)	9 (23%)	39
Jun 00 – May 01	7 (20%)	25 (71%)	0 (0%)	0 (0%)	3 (9%)	35

11. It is noted from the Events included at Annex A, that 66 (66%) NSERs were directly related to a submarine. As the submarines provide the source of the greatest potential radiological hazard, it should be expected that the greater number of NSERs will be raised from this area.

12. A localised trend of NSERs was noted, reported and acted upon, as having significant Radiological implications associated with Reactor Compartment work. This resulted in a temporary suspension of RC work to allow the adequacy of the associated management arrangements to be reviewed. The

follow up actions have been reported through the NSER Close out reports and summarised to the Clyde Nuclear Safety Committee and Site Regulatory Forum.

13. Continuous Improvement. Process Map NSA-PM-005 was amended in Jan 07. The following changes were incorporated:

a. Guidance for Ministerial Reporting (audited for compliance with Authorisation Conditions and HMNB Clyde's compliance statements).
a. An escalation process for outstanding NSERs (review process).
b. The appointment of investigating officers and RCA training requirements.
c. The inclusion of the distribution for NSER close out summaries.
d. Further guidance on the categorisation of NSERs.
e. The inclusion of electrical Shore supply losses into the event reporting system.

CONCLUSIONS

14. A total of 100 Nuclear Safety Events were raised during the period 1 Jun 06 – 31 May 07. There were no Site Incident Reports raised during this period.

16. It is believed that the awareness of the Nuclear Safety Event Reporting System within the Base continues to improve through NSER Presentations and Operational Experience Feedback (OEF). Whilst the deliverance of NSER Presentations throughout the reporting period predominantly focussed on SSBN crews, greater emphasis will be placed on SSN crews and base personnel during the forthcoming year.

17. A revised Process Map for event reporting was introduced during the reporting year. Further improvements to the Nuclear Safety Event Reporting System continue to be made, in particular improved methods for initial reporting of events is under consideration.

Signed on Original

Annex:

A. Nuclear and Radiological Events Reported 1 Jun 06 – 31 May 07.
B. NSERs raised in conjunction with Submarine Incident Reports (IRs) 1 Jun 06 – 31 May 07.
C. Significant "Lessons Learnt" from the NSERs 1 Jun 06 – 31 May 07.