Ministry of Defence

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**STUART ANDREW MP**
PARLIAMENTARY UNDER-SECRETARY OF STATE AND MINISTER
FOR DEFENCE PROCUREMENT

D/Min(DP)/SA PQN/17-19/2018/13343/is

1st November 2018

Dear Deidre

In my response (Official Record 15 May 2018) I confirmed that I would write to you with a substantive response to your questions:

> *"To ask the Secretary of State for Defence, how many nuclear safety events have occurred on submarines docked at Faslane in each year since 2006 by (a) class of submarine and (b) type of incident.*
>
> *To ask the Secretary of State for Defence, how many leaks of radioactive coolant there have been from submarines berthed at Faslane in each of the last ten years."*

It may be helpful if I provide some context to the way in which events are categorised and reported.

Her Majesty's Naval Base (HMNB) Clyde, in common with other defence and civil nuclear sites, employs an agreed system for raising Nuclear Site Event Reports (NSERs), which detail their investigation and categorisation according to their safety significance. These events may be near-misses, equipment failures, human error or procedural failings. They are raised, however minor they may appear, to encourage a comprehensive, robust reporting culture, undertake learning from experience and to take early corrective action.

This reporting process has been agreed by the Defence Nuclear Safety Regulator (DNSR) and is subject to routine inspections. In November 2015, the NSER categorisation criteria were updated and an additional 'Below Scale' category was introduced to align better with wider industry best practice as recognised by DNSR and the Office for Nuclear Regulation (ONR). Following joint inspection of HMNB Clyde's arrangements in May 2016, DNSR graded their assessment as Green (Adequate), the higher assessment. The relevant criteria for before and after 2015 are at Annex A.

Deidre Brock MP
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On this basis, from the records available, the following NSERs were raised for submarines berthed or docked at Faslane for each calendar year since 2006:

| **Nuclear Site Events - 2006** | Category A | Category B | Category C | Category D |
|---|---|---|---|---|
| Swiftsure Class SSN | 0 | 1 | 2 | 8 |
| Trafalgar Class SSN | 0 | 0 | 0 | 1 |
| Vanguard Class SSBN | 1 | 6 | 2 | 3 |

Total NSERs – 24 in 2006

| **Nuclear Site Events - 2007** | Category A | Category B | Category C | Category D |
|---|---|---|---|---|
| Swiftsure Class SSN | 1 | 1 | 2 | 15 |
| Trafalgar Class SSN | 0 | 1 | 8 | 4 |
| Vanguard Class SSBN | 0 | 1 | 4 | 6 |

Total NSERs – 43 in 2007

| **Nuclear Site Events - 2008** | Category A | Category B | Category C | Category D |
|---|---|---|---|---|
| Swiftsure Class SSN | 0 | 2 | 2 | 5 |
| Trafalgar Class SSN | 0 | 1 | 1 | 1 |
| Vanguard Class SSBN | 0 | 4 | 11 | 14 |

Total NSERs – 41 in 2008

| **Nuclear Site Events - 2009** | Category A | Category B | Category C | Category D |
|---|---|---|---|---|
| Swiftsure Class SSN | 0 | 0 | 4 | 8 |
| Trafalgar Class SSN | 0 | 0 | 0 | 1* |
| Vanguard Class SSBN | 0 | 0 | 8 | 10 |

Total NSERs – 31 in 2009.

* Reported through Commodore Devonport Flotilla during visit to Clyde.

| **Nuclear Site Events - 2010** | Category A | Category B | Category C | Category D |
|---|---|---|---|---|
| Swiftsure Class SSN | 0 | 0 | 0 | 0 |
| Astute Class SSN * | 0 | 0 | 4 | 7 |
| Trafalgar Class SSN | 0 | 0 | 0 | 3 |
| Vanguard Class SSBN | 0 | 2 | 6 | 10 |

Total NSERs – 32 in 2010

* HMS ASTUTE first arrived at Faslane in November 2009.

| **Nuclear Site Events - 2011** | Category A | Category B | Category C | Category D |
|---|---|---|---|---|
| Astute Class SSN | 0 | 0 | 3 | 0 |
| Trafalgar Class SSN | 0 | 0 | 0 | 1 |
| Vanguard Class SSBN | 0 | 0 | 10 | 10 |

Total NSERs – 24 in 2011

| **Nuclear Site Events - 2012** | Category A | Category B | Category C | Category D |
|---|---|---|---|---|
| Astute Class SSN | 0 | 0 | 2 | 6 |
| Trafalgar Class SSN | 0 | 0 | 0 | 1 |
| Vanguard Class SSBN | 0 | 1 | 7 | 4 |

Total NSERs – 21 in 2012

| **Nuclear Site Events - 2013** | Category A | Category B | Category C | Category D |
|---|---|---|---|---|
| Astute Class SSN | 0 | 0 | 2 | 9 |
| Trafalgar Class SSN | 0 | 0 | 2 | 2 |
| Vanguard Class SSBN | 0 | 0 | 6 | 11 |

Total NSERs – 32 in 2013

| **Nuclear Site Events - 2014** | Category A | Category B | Category C | Category D |
|---|---|---|---|---|
| Astute Class SSN | 0 | 0 | 5 | 6 |
| Trafalgar Class SSN | 0 | 0 | 2 | 4 |
| Vanguard Class SSBN | 0 | 0 | 14 | 8 |

Total NSERs – 39 in 2014

| **Nuclear Site Events - 2015** | Category A | Category B | Category C | Category D | Below Scale* |
|---|---|---|---|---|---|
| Astute Class SSN | 0 | 0 | 3 | 7 | 4 |
| Trafalgar Class SSN | 0 | 0 | 16 | 10 | 0 |
| Vanguard Class SSBN | 0 | 0 | 13 | 11 | 1 |

Total NSERs – 65 in 2015

* Updated categorisation criteria from November 2015

| **Nuclear Site Events - 2016** | Category A | Category B | Category C | Category D | Below Scale |
|---|---|---|---|---|---|
| Astute Class SSN | 0 | 1 | 2 | 9 | 18 |
| Trafalgar Class SSN | 0 | 0 | 0 | 1 | 10 |
| Vanguard Class SSBN | 0 | 0 | 5 | 12 | 22 |

Total NSERs – 80 in 2016

| **Nuclear Site Events - 2017** | Category A | Category B | Category C | Category D | Below Scale |
|---|---|---|---|---|---|
| Astute Class SSN | 0 | 0 | 1 | 6 | 26 |
| Trafalgar Class SSN | 0 | 0 | 0 | 0 | 4 |
| Vanguard Class SSBN | 0 | 0 | 1 | 10 | 25 |

Total NSERs – 73 in 2017

You will notice that there are two Category A events listed from 2006 and 2007. Given that the safety significance of all reported events has remained very low, it is worth highlighting that in neither event was any radiological contamination evident. The details are:

- 2006 - Flexible pipework failure during routine maintenance led to a contained submarine compartment water spill, with no loss of water into the environment. A member of staff became wet: as a precaution, the individual was monitored to ensure no contamination, and was given the all clear.

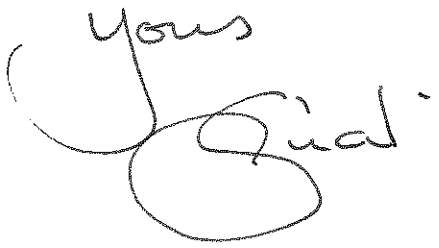
- 2007 - During a pressure test of pipework connected to a submarine, an incorrect valve position resulted in a discharge of water. 150 litres were discharged and no detectable radioactive contamination was discovered.

None of the events caused harm to the health of any member of staff on the Naval Base, or to any member of the public, and the safety significance has remained very low. The Ministry of Defence, however, takes all such incidents, no matter how minor, extremely seriously and ensures they are investigated and appropriate measures put in place to prevent a recurrence.

With regards to your second question related to leaks of radioactive coolant, I can confirm that there have been no such leaks of primary coolant to the environment from any submarines berthed at Faslane in the last ten years.

I hope that this response is helpful.

A copy of this letter will be placed in the Library of the House.



**STUART ANDREW MP**

**Annex A**
**To the response to Parliamentary Questions**
**Reference 142889 & 142890**

## CATEGORISATION OF NUCLEAR AND RADIOLOGICAL EVENTS (TO NOV 15)

| Cat | Nuclear Event Consequence | Description |
|---|---|---|
| **A** | Actual or high potential for radioactive release to the environment or over exposure to radiation. | Major failure of Site or Nuclear Propulsion / Nuclear Weapon (NP/NW) services.<br><br>Major reduction of defence in depth.<br><br>Major failure in administrative controls or regulatory compliance. |
| **B** | Actual or high potential for a contained release within building or submarine or unplanned exposure to radiation. | |
| **C** | Moderate potential for future release or exposure, or localised release within a designated radiological controlled area. | Minor failure of Site or NP/NW services (eg with protection via defence in depth).<br><br>Minor regulatory or procedural compliance breach. |
| **D** | Low potential for release – but may contribute towards an adverse trend producing latent conditions. | Poor safety culture, eg:<br>- Failure to report shortfalls.<br>- Communication failures.<br>- Leadership issues. |

# CATEGORISATION OF NUCLEAR AND RADIOLOGICAL EVENTS (POST NOV 15)

| Cat | Release of radioactive material | Radiological consequence | Safe operation or safe condition |
|---|---|---|---|
| **A** | Actual or high potential for radioactive release to the environment of quantities in excess of IRR99 notification limits. | Unplanned individual exposure to radiation >200μSv. | |
| **B** | Actual or high potential for a contained release within building or submarine.<br><br>Actual or high potential for radioactive release to the environment of quantities below IRR 99 notification limits. | Unplanned individual exposure to radiation >20μSv. | Could significantly prejudice the requirements of a safety case or a breach of safety case requirements |
| **C** | Moderate potential for future release to the environment.<br><br>Localised release within a designated radiological controlled area.<br><br>Actual radioactive release to the environment where quantity of release is likely to be Below Detection Threshold (BDT). | Unplanned individual exposure to radiation <20μSv. | Failure of a line of defence or protection or a similar occurrence |
| **D** | Low potential for release but may contribute towards an adverse trend producing latent conditions. | | May affect the safe operation or safe condition |
| **Below Scale** | | | Of safety interest or concern, including:<br>(1) human error;<br>(2) equipment or process failures that cause near misses;<br>(3) abnormal occurrences. |