

Consequences Report

Part 1 – Factual Information

1. Regulation 7(3) Schedule 4 Clause 1(a) - Name and address of the operator:

- a. Naval Base Commander Clyde (NBC(C)).
- b. Her Majesty's Naval Base Clyde, Faslane, Helensburgh, Argyll and Bute, G84 8HL.

2. Regulation 7(3) Schedule 4 Clause 1(b) - Postal address of the premises where the radioactive substance will be processed, manufactured, used or stored, or where the facilities for processing, manufacture, use of storage exist:

- a. Her Majesty's Naval Base Clyde, Faslane, Helensburgh, Argyll and Bute, G84 8HL.

3. Regulation 7(3) Schedule 4 Clause 1(c) - The date on which it is anticipated that the work with ionising radiation will commence or, if it has already commenced, a statement to that effect:

- a. HMNB(C) Faslane has worked with ionising radiation to provide technical, logistic and administrative support to nuclear-powered warships since 1963.

Part 2 – Recommendations

1. Regulation 7(3) Schedule 4 Clause 2(a) - The proposed minimum geographical extent from the premises to be covered by the local authority's off-site emergency plan:

- a. The proposed minimum geographical extent from the premises to be covered by the local authority's detailed emergency plan is an area extending to a distance of 1.5 km from a submarine berth.
- b. An outline planning zone of 5 km has been determined for HMNB(C) Faslane by the Secretary of State for Defence in accordance with regulation 9(1)(c).

2. Regulation 7(3) Schedule 4 Clause 2(b) – The minimum distances to which urgent protective actions may need to be taken, marking against each distance the timescale for implementation of the relevant action; and Clause 3(a) – The recommended urgent protective actions to be taken within that zone, if any, together with timescales for the implementation of those actions.

The following distances are recommended for the urgent protective actions of evacuation, sheltering and stable iodine tablets. These are the largest distances determined by detailed consequence assessment of a range of source terms and include consideration of a range of weather conditions and populations.

- a. 200 m from the submarine in all directions - controlled evacuation of the immediate area around the submarine (NB: No member of the public would be expected to be within this area).
- b. 400 m from the submarine in all directions – personnel to shelter indoors within the first few hours.

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- c. 1.5 km from the submarine in the downwind sector - provision and consumption of stable iodine tablets (SITs) within the first few hours¹.
- d. 1.5 km from the submarine in the downwind sector - sheltering indoors within the first few hours.

It is recommended that the declaration of an Off-Site Nuclear Emergency by the operator to the local authority is the trigger for implementing the off-site emergency plan and initiating all of the above recommended urgent protective actions.

3. Regulation 7(3) Schedule 4 Clause 3(b) – Details of the environmental pathways at risk in order to support the determination of food and water restrictions in the event of a radiation emergency:

- a. A release of radioactive material from the submarine could create the requirement for food and water restrictions. For a submarine, this can take the form of an airborne release and/or a marine release.
- b. For an airborne release, radioactive material will be dispersed downwind. A proportion of this material will fall to the ground - this material will be available for uptake into the terrestrial food chain via ingestion of contaminated foodstuffs. Radioactive material released to the air may also make its way into the freshwater environment either through run-off or direct deposition on open water.
- c. For a marine release, radioactive material will be deposited in the area surrounding the submarine - this may affect the marine food chain and pose a hazard via ingestion of contaminated seafoods.

Part 3 - Rationale

1. Regulation 7(3) Schedule 4 Clause 4 – The rationale supporting each recommendation made:

- a. Controlled evacuation of the immediate area around the submarine to 200 m in all directions is to protect against the direct gamma radiation hazards from the submarine, in accordance with the lower emergency reference level (ERL) for evacuation of 30 mSv.
- b. Sheltering indoors up to 400 m in all directions from the submarine is to protect against the direct gamma radiation hazards from the submarine, in accordance with the lower ERL for shelter of 3 mSv.
- c. Consumption of SITs in the 1.5 km downwind zone is to protect against an uptake of radioactive iodine to the thyroid, in accordance with the lower ERL for stable iodine of 30 mSv.¹
- d. Sheltering within the 1.5 km downwind zone is to protect against contamination following a release of radioactive material, in accordance with the lower ERL for shelter of 3 mSv.
- e. The recommendation to shelter and consume SITs out to 1.5 km in the downwind sector differs from the previous recommendation of 1.2 km due to the consideration of a wider range of weather conditions in accordance with Schedule 3. This is in line with the current emergency arrangements, and ensures the public are protected from a full range of possible consequences identified.

¹ Note: The provision and consumption of SITs within the first few hours is only a requirement for radiation emergencies involving the naval reactor plant.

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f. The Secretary of State for Defence has determined an outline planning zone distance of 5 km.

2. Regulation 7(3) Schedule 4 Clause 5(a) – The rationale for its recommendation on the minimum distances for which urgent protective action may need to be taken:

a. The minimum distances recommended are based on a full range of possible consequences of the identified radiation emergencies evaluated in the consequence assessment made in accordance with regulation 5(1). These consequences were subsequently compared with the ERLs listed in PHE-CRCE-049 May 2019.

3. Regulation 7(3) Schedule 4 Clause 5(b) – The rationale for agreement that no off-site planning is required.

a. This clause does not apply to HMNB(C) Faslane.

Consequences Report

Part 1 – Factual Information

1. Regulation 7(3) Schedule 4 Clause 1(a) - Name and address of the operator:

- a. Assistant Chief of Naval Staff Submarines.
- b. Command Building, HMNB Clyde, Faslane, Helensburgh, G84 8HL.

2. Regulation 7(3) Schedule 4 Clause 1(b) - Postal address of the premises where the radioactive substance will be processed, manufactured, used or stored, or where the facilities for processing, manufacture, use of storage exist:

- a. QinetiQ Loch Goil, Douglas Pier Loch Goil, Lochgoilhead, PA24 8AE.

3. Regulation 7(3) Schedule 4 Clause 1(c) - The date on which it is anticipated that the work with ionising radiation will commence or, if it has already commenced, a statement to that effect:

- a. Loch Goil Operational Berth has worked with ionising radiation in berthing nuclear-powered warships for over 45 years.

Part 2 – Recommendations

1. Regulation 7(3) Schedule 4 Clause 2(a) - The proposed minimum geographical extent from the premises to be covered by the local authority's off-site emergency plan:

- a. The proposed minimum geographical extent from the premises to be covered by the local authority's detailed emergency plan is an area extending to a distance of 1.5 km from the Loch Goil Operational Berth (grid reference NS 2050 9800).
- b. An outline planning zone of 5 km has been determined for Loch Goil Operational Berth by the Secretary of State for Defence in accordance with regulation 9(1)(c).

2. Regulation 7(3) Schedule 4 Clause 2(b) – The minimum distances to which urgent protective actions may need to be taken, marking against each distance the timescale for implementation of the relevant action; and Clause 3(a) – The recommended urgent protective actions to be taken within that zone, if any, together with timescales for the implementation of those actions.

The following distances are recommended for the urgent protective actions of evacuation, sheltering and stable iodine tablets (SITs). These are the largest distances determined by detailed consequence assessment of a range of source terms and include consideration of a range of weather conditions and populations.

- a. 200 m from the submarine in all directions - controlled evacuation of the immediate area around the submarine (NB: No member of the public would be expected to be within this area).
- b. 400 m from the submarine in all directions – personnel to shelter indoors within the first few hours.
- c. 1.5 km from the submarine in the downwind sector - provision and consumption of SITs

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within the first few hours¹.

- d. 1.5 km from the submarine in the downwind sector - sheltering indoors within the first few hours.

It is recommended that the declaration of an Off-Site Nuclear Emergency by the operator to the local authority is the trigger for implementing the off-site emergency plan and initiating all of the above recommended urgent protective actions.

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Part 3 - Rationale

1. Regulation 7(3) Schedule 4 Clause 4 – The rationale supporting each recommendation made:

- a. Controlled evacuation of the immediate area around the submarine to 200 m in all directions is to protect against the direct gamma radiation hazards from the submarine, in accordance with the lower emergency reference level (ERL) for evacuation of 30 mSv.
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- c. Consumption of SITs in the 1.5 km downwind zone is to protect against an uptake of radioactive iodine to the thyroid, in accordance with the lower ERL for stable iodine of 30 mSv.¹
- d. Sheltering within the 1.5 km downwind zone is to protect against contamination following a release of radioactive material, in accordance with the lower ERL for shelter of 3 mSv.
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3. Regulation 7(3) Schedule 4 Clause 5(b) – The rationale for agreement that no off-site planning is required.

a. This clause does not apply to Loch Goil Operational Berth.