

OFFICIAL



Navy Command

Capt Philip Parvin Royal Navy
Chief Staff Officer (Engineering)
Submarine Division
Navy Command Headquarters
MP2-3
Leach Building
Whale Island
Portsmouth
PO2 8BY

Subs/CSO(E)SM/1909203

Telephone: 02392 625450
Email: Philip.Parvin959@mod.gov.uk

Katherine Fairclough
Cumbria County Council
Cumbria House
117 Botchergate
Carlisle
Cumbria
CA1 1RD

20 September 2019

RAMSDEN DOCK OPERATIONAL BERTH – Radiation (Emergency Preparedness and Public Information) Regulations (REPPiR 2019) – CONSEQUENCES REPORT

1. Navy Command has made an assessment pursuant to regulation 5(1), considering and evaluating a full range of the possible consequences of the identified radiation emergencies, at Ramsden Dock Operational Berth. In accordance with regulation 7(3) a report setting out the consequences identified by that assessment is attached with this letter.
2. The operations considered when undertaking the hazard evaluation were:
 - a. Berthing and movements of nuclear-powered warships; and
 - b. Operation of the naval reactor plant including associated systems.

The hazard evaluation identified all hazards arising from the work undertaken which have the potential to cause a radiation emergency.

3. Navy Command formally invites the local authority to discuss the attached consequences report, in accordance with regulation 7(4).

P S Parvin
Capt RN
CSO(E) SM

OFFICIAL

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. Ramsden Dock, Port of Barrow, c/o Associated British Ports, Ramsden Dock Rd, Barrow-in-Furness, Cumbria.

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. Ramsden Dock Operational Berth has worked with ionising radiation in berthing nuclear-powered warships since 1992.

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 690 m from Ramsden Dock Operational Berth.
- b. An outline planning zone of 4 km has been determined for Ramsden Dock 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. 30 m from the submarine in all directions, although this should be extended to distances to 130 m at locations which are in line of sight of the berthed submarine.

Page 2 of 4	Revision 3	NERO(C)-SD-038
UNCONTROLLED IF PRINTED <i>It is the responsibility of the user to ensure they are working with the latest revision</i>		Printed: 21/05/2020

OFFICIAL

- b. 630 m from the submarine in all directions – personnel to shelter indoors within the first few hours.
- c. 400 m from the submarine in the downwind sector - provision and consumption of SITs 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. .
- b. Sheltering indoors up to 630 m in all directions from the submarine is to protect against the direct gamma radiation hazards and to protect against the contamination following a release of radioactive material from the submarine, in accordance with the lower ERL for shelter of 3 mSv.
- c. Consumption of SITs in the 400 m 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.
- d. The recommendation has been made following consideration of a full range of possible consequences of the identified radiation emergencies under a range of weather conditions over a two day exposure period.
- e. The Secretary of State for Defence has determined an outline planning zone distance of 4 km.

Page 3 of 4	Revision 3	NERO(C)-SD-038
UNCONTROLLED IF PRINTED <i>It is the responsibility of the user to ensure they are working with the latest revision</i>		Printed: 21/05/2020

OFFICIAL

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 Ramsden Dock Operational Berth.

Page 4 of 4	Revision 3	NERO(C)-SD-038
UNCONTROLLED IF PRINTED <i>It is the responsibility of the user to ensure they are working with the latest revision</i>		Printed: 21/05/2020