



PORTLAND PORT OFF-SITE REACTOR EMERGENCY PLAN

Prepared and updated by Dorset County Council Emergency Planning Service to comply with the requirements of the Radiation (Emergency Preparedness and Public Information) Regulations 2001
(Version 3, last updated March 25, 2013)

PORTLAND PORT OFF-SITE REACTOR EMERGENCY PLAN

SUMMARY

1. The Portland Port Off-site Reactor Emergency Plan (to be referred to in the text also as “the Plan”) has been produced by Dorset County Council Emergency Planning Service in conjunction with the Ministry of Defence (HM Naval Base, Devonport) and the organisations of the Operational Berth Issues Group (OBIG).
2. The primary aim of the plan is to safeguard the public in the unlikely event of a nuclear powered vessel reactor accident at either the Portland Bunkering International Berth or the Deep Water Berth, Portland, which might lead to a radiation emergency requiring urgent countermeasures to be implemented to protect the public.

The objectives of the plan are to:

- Preserve life
- Protect the public
- Safeguard the environment
- Allay public fear
- Protect Property
- Co-ordinate public information

This document is unclassified and is for use by authorities and persons concerned with public health and safety.

3. The Portland Port Off-Site Reactor Emergency Plan is a requirement of the Radiation (Emergency Preparedness and Public Information) Regulations 2001. The Plan interfaces with the Site Specific Operator’s Emergency Plan produced by the MoD.
4. A further aim of the plan is to include automatic and pre-planned response actions to mitigate the consequences of an accident involving a nuclear powered vessel (NPV). In addition the plan involves the establishment of the required command, control and liaison organisation, at the local and national level, capable of the successful implementation of these early measures. This organisation allows consideration, by all relevant authorities, of the later follow-on and recovery aspects of the accident for which detailed pre-planning is not considered appropriate.
5. In the very unlikely event of a reactor emergency in Portland Port, the general public will be advised of actions to take by the Local Authority. A Tactical Command Centre (TCC) will be set up. The TCC will provide the local point for Command and Control and will use the media and a help line to issue information and advice.
6. Depending on the severity of the accident and the weather conditions prevailing at the time, there may be a need to implement countermeasures downwind of the accident site. The contingency plans make provision for ensuring that those members of the general public to whom such countermeasures may apply are advised promptly.

7. These measures include:

- a) Remaining indoors with windows and doors closed to provide shelter from any radioactive cloud that may have been released.
- b) The administration of Potassium Iodate Tablets (PIT's) to be taken orally to prevent the uptake of radioactive Iodine by the thyroid gland.
- c) Restrictions on the use of fresh foods and dairy products to prevent the ingestion of any radioactive material.
- d) Temporary relocation or evacuation from areas where radioactive material may have been deposited.

8. The plan is regularly reviewed, particularly before a visit of a Nuclear Powered Vessel (NPV). Additionally, it is a REPPIR requirement that the plan is exercised and reviewed at least every three years.

CONTENTS LIST

	<u>Page No</u>
CONTENTS LIST	5
FORWORD	
Distribution of the Plan	7-8
Operational Berth Issues Group	9
Record of Changes	11-14
Glossary of Terms	15-17
List of Abbreviations	18-19
PART 1	
Background to Reactor Emergency Contingency Planning	21-38
PART 2	
Organisation and Actions on Declaration of an Emergency	39-82
PART 3	
Information to the Media and Public	70-85
PART 4	
Radiation Protection and Scientific & Technical Advisory Cell	86-91
PART 5	
Potassium Iodate Tablets – Distribution Plan	92-109
PART 6	
Emergency Services/Agencies Responses	111-123
6.1 Introduction	112
6.2 Entry to the ACMZ	113
6.3 Dorset Police	114
6.4 Dorset Fire & Rescue Services	115
6.5 South Western Ambulance Service NHS Foundation Trust	116-118
6.6 West Dorset and Weymouth & Portland Council	119
6.7 NHS Commissioning Board Area Team Wessex	120
6.8 Dorset County Council	121
6.9 HSE Office for Nuclear Regulation	122
6.10 Maritime & Coastguard Agency	123
6.11 DCLG RED role in nuclear emergencies	124
PART 7	
Remediation Procedures	126-134
Associated Plans and Guidance Documents	135

<u>Distribution</u>		<u>No</u>
West Dorset, Weymouth & Portland Council	Chief Executive	1
Dorset County Council	Chief Executive	2
West Dorset District Council	Chief Executive	1
Purbeck District Council	Chief Executive	1
North Dorset District Council	Chief Executive	1
East Dorset District Council	Chief Executive	1
Christchurch Borough Council	Chief Executive	1
Dorset Police	Chief Constable	11
Portland Port Ltd	Manager	10
NHS Commissioning Board South	Chief Executive	4
NHS Commissioning Board Area Team Wessex	Chief Executive	3
Environment Agency	South Wessex Area Manager	3
HSE ONR	Inspector	1
HPA Radiation Protection Division	HPA-RPD Emergency Organisation	1
DEFRA – HEO Emergencies	Regional Executive Officer	1
DEFRA – London		1
Dorset Fire & Rescue Service	Chief Fire Officer	2
	Divisional Commander	1
Winfrith UKAEA	Site Emergency Planner	1
South Western Ambulance NHS Trust	Chief Ambulance Officer	3

MoD/ Naval Authorities

MoD Main Building (for Directorate of Business Resilience, Nuclear Security and Emergency Planning)	1
DE & S SM Abbeywood (for SONART)	1
NBC Devonport (for SHPP)	3
	1
NAVY COMMAND HQ – Portsmouth (for RADPOLSM)	
	2
COMDEVFLOT (for RSO)	
	2
COMFASFLOT (for RSO)	
Defence Nuclear Safety Regulator (DNSR)	1
DSTL Environmental Sciences	1
INM Alverstoke (for HSRM)	1

OPERATIONAL BERTH ISSUES GROUP (OBIG)

Civil Authorities

West Dorset, Weymouth & Portland Council
Dorset County Council
Dorset Police
Dorset Fire & Rescue Service
South Western Ambulance NHS Trust
Maritime & Coastguard Agency
Environment Agency
Food Standards Agency
Public Health England Dorset, Hants, IOW
Portland Port Limited
Public Health England Radiation Protection Division
NHS Commissioning Board Area Team Wessex
NHS Commissioning Board South
Health and Safety Executive (HSE) ONR
Portland Town Council

Naval/MOD (N) Representatives

Naval Base Commander Devonport
Defence Nuclear Safety Regulator, MoD, Abbey Wood, Bristol, BS34 8JH
Navy Command HQ

RECORD OF CHANGES

Change No (2008)	Authority	Date Inserted	Signature
1	MOD Devonport: change “Z-Berth” to “Operational Berth” throughout.	3.04.08	
2	DCC: Page 56, cascade callout changed to reflect Dorset Police alert DCC DEPO	3.04.08	
3	Dorset Police: Pages 71, 72: Tactical Command Centre layout changed	3.04.08	
4	Dorset Police: Pages 71, 72: Tactical Command Centre layout changed	06.10.08	

Change No (2010)	Authority	Date Inserted	Signature
1	MOD Devonport: For MoD Distribution <ul style="list-style-type: none"> MoD (DS & C) change to MoD (Safety, Sustainable Development and Continuity Division) DLO AD NWG/NARG (for SONART) change to DE & S SM SW (for SONART) FLEET HQ – Portsmouth (for RADPOLSM) change to NAVY COMMAND HQ – Portsmouth (for RADPOLSM). 	13.01.10	

2	MOD Devonport: For O Berth Issues Distribution Group <ul style="list-style-type: none"> Change Fleet HQ to Navy Command HQ 	13.01.10	
3	MOD Devonport: also amended para. 1.21, 2.1b, 2.4a, 2.4b, 2.9, 2.10, 2.11, 2.13, 2.16, 2.20, 2.24, 2.25, 2.28, 2.29a, 2.29b, 2.30, 2.31, 3.09, 5.1, 5.3.2, 5.5, Annex 2A, Annex 2B, Annex 2C, Annex A, Annex B	13.01.10	
4	Portland Harbour Authority: 2.21C - Operational Level Bronze is now located on the Top floor of the Main Port Building in Harbour Control	13.01.10	
5	Portland Harbour Authority: 2.28 - first response will be the Duty Marine Officer	13.01.10	
6	Portland Harbour Authority: 2.32a - All personnel entering the port after a reactor accident will do so via the <u>Main Gate Security</u> . The security officer will call the Operations command centre for further instructions before allowing them to proceed on site	13.01.10	
7	Portland Harbour Authority: provided new layout for the Incident Command Centre (page 70)	13.01.10	
8	Dorset Police: provided new layout for tactical Command centre	26.03.10	
9	HSE: Part 2A – Section 2.1 b)	01.03.10	

10	HSE: Part 2A – Section 2.9	01.03.10	
11	HSE: Part 2A – section 2.10	01.03.10	
12	HSE: Part 2A – section 2.11	01.03.10	
13	HSE: Part 2A – section 2.16	01.03.10	
14	HSE: Part 2A – section 2.16	01.03.10	
15	HSE: Part 2A – section 2.24	30.03.10	
16	HSE: Part 2B – annexe 2A para 1	30.03.10	
17	HSE: Part 2B – annexe 2A para 2 h)	30.03.10	
18	HSE: Part 2B – annexe 2H para 3	30.03.10	
19	HSE: Part 5 – section 5.1	30.03.03	
20	HSE: Part 5 – Annexe B	30.03.03	

21	HSE: Part 6 – section 6.2	30.03.10	
22	HSE: Part 6 – section 6.5 (TBD between SWAST and HSE)	30.03.10	
23	HSE: Part 6 – section 6.9.1	30.03.10	

Change No (2013)	Authority	Date Inserted	Signature
1	Numerous changes from all partner Agencies, Navy HQ, and bringing in line with relevant developments since 2010, including Atkins review.	22.03.13	<i>O. Rominger</i>

GLOSSARY OF TERMS

CONTAINMENT

Primary Containment

The compartment surrounding the reactor plant made up of the pressure hull of the submarine and internal bulkheads designed to withstand the build-up of pressure after a severe reactor accident.

Secondary Containment

The compartment within the submarine hull on either side of the primary containment that can prevent internal leakage from primary containment to the atmosphere.

DECAY HEAT

Heat produced by radioactive decay, particularly of fission products, in the reactor fuel. This continues to be produced after the reactor has been shut down. It cannot be shut off, but gradually dies away after the reactor has been shut down.

DECONTAMINATION

The removal of radioactive material from a person or surface.

EMERGENCY EXPOSURE

The exposure of an employee engaged in an activity of or associated with the response to a radiation emergency or potential radiation emergency in order to bring help to endangered persons, prevent exposure of a large number of persons or save a valuable installation or goods, whereby one of the individual dose limits referred to in the Ionising Radiation Regulations 1999 could be exceeded. Such exposures require special authorisation as stated in REPIR Regulation 14.

EMERGENCY REFERENCE LEVELS (ERLs)

A range of intervention levels of averted dose advised by Public Health England – Radiation Protection Division to provide guidance on the need for emergency countermeasures following a reactor accident.

GAMMA SHINE

The gamma radiation that would emanate directly from a submarine following a reactor accident.

INTERVENTION *

An activity that prevents or reduces the radiation exposure of personnel resulting from a radiation emergency or from an event that could lead to a radiation emergency.

MEMBER OF THE PUBLIC *	<p>Any person not being:</p> <p>(a) a person for the time being present upon premises where a radiation emergency is reasonably foreseeable or where a radiation emergency has actually occurred, or</p> <p>(b) a person engaged in an activity of or associated with the response to a radiation emergency.</p>
OFF-SITE NUCLEAR EMERGENCY	A hazardous condition which required the implementation of urgent countermeasures to protect the public.
OFF-SITE EMERGENCY PLAN *	Plan prepared by the local authority if their area of responsibility includes premises where it has been assessed as reasonably foreseeable that a radiation emergency might arise.
OPERATOR *	<p>Any reference to an operator is a reference to:</p> <p>(a) any premises other than a licensed site, where the person who is, in the course of a trade, business or other undertaking carried on by him, in control of the operation of premises, and</p> <p>(b) in the case of a licensed site, is the licensee</p>
OPERATOR'S EMERGENCY PLAN *	An operator's emergency plan is required for the premises where it is reasonably foreseeable that a radiation emergency might arise.
POTASSIUM IODATE TABLETS	Tablets containing stable Iodine, which would minimise the uptake of radioactive Iodine into the thyroid gland.
PREMISES *	The whole area under the control of the same person where radioactive substances are present in one or more installations.
RADIATION ACCIDENT *	An accident where immediate action would be required to prevent or reduce the exposure to ionising radiation of employees or any other persons and includes a radiation emergency.
RADIATION EMERGENCY *	Any event likely to result in a member of the public exceeding an effective dose of 5 mSv in the following year and for this purpose any health protection measure to be taken during the 24 hours immediately following the event shall be disregarded

RELOCATION	The movement of members of the general public away from contaminated areas to avoid chronic long-term radiation dose.
REPPIR The Radiation (Emergency Preparedness and Public Information) Regulations 2001	<p>Statutory Regulations relating to:</p> <p>a) the assessment of risks from installations holding large quantities of radioactive material</p> <p>b) the production of emergency plans to mitigate such risks</p> <p>c) informing the public about health protection measures to be taken in the event of a radiological emergency and the basic safety standards for the protection of the general public and workers against the dangers of ionising radiation.</p>
REACTOR SAFETY ALERT	An abnormal event which poses a special threat to or poses serious concern for reactor safety.
SITE SPECIFIC INTERVENTION LEVEL	Radiation dose selected from the ERL range at which a particular countermeasure would be implemented. To be expressed as an averted dose defined locally and detailed in local plans.

* Definitions marked by an asterisk refer to definitions set out in REPPIR

LIST OF ABBREVIATIONS

ACC	Assistant Chief Constable
ACMZ	Automatic Countermeasures Zone
CBRN	Chemical, Biological, Radiological, Nuclear Attack
DNSC	Defence Nuclear Safety Committee
DNSR	Defence Nuclear Safety Regulator
DNEO	Defence Nuclear Emergency Organisation
DSTL	Defence Science and Technology Laboratory
DEPZ	Detailed Emergency Planning Zone
DPCB	Dorset Police Casualty Bureau
EMHQ	Emergency Monitoring Headquarters
EZRC	Exclusion Zone Reception Centre
ERL	Emergency Reference Level
EOP	Emergency Operating Procedure
FSA	Food Standards Agency
DF&RS	Dorset Fire and Rescue Service
PHE	Public Health England
HSE	Health and Safety Executive
IC	Incident Commander
ICC	Information Co-ordination Centre
IRR99	The Ionising Radiation Regulations 1999
MLR	Monitoring Land Rover
MCA	Maritime and Coastguard Agency or Military Co-ordinating Authority
MoD	Ministry of Defence
MoD HQ DNEO	Ministry of Defence Headquarters Nuclear Defence Nuclear Emergency Organisation
NEBUST	Nuclear Emergency Backup Support Team
NERIMS	Nuclear Emergency Response Information Management System
NBC	Naval Base Commander
NCA	Naval Co-ordinating Authority

NEMT	Nuclear Emergency Monitoring Team
ONR	Office for Nuclear Regulation
NOTAM	Notice to Airmen
NPV	Nuclear Powered Vessel
OBIG	Operational Berth Issues Group
PACRAM	Procedures and Communications in the event of a release of Radioactive Materials
PITs	Potassium Iodate Tablets
PPL	Portland Port Limited
REPPIR	Radiation (Emergency Preparedness and Public Information) Regulations 2001
SITREP	Situation Report
STAC	Scientific & Technical Advisory Cell
SCC	Strategic Command Centre
SCG	Strategic Co-ordination Group
SONART	Staff Officer Nuclear Accident Response and Training
TASG	Technical Advisory Support Group
TCC	Tactical Command Centre
WAT	Wessex Area Team
WDWP	West Dorset, and Weymouth and Portland Council

PART 1

BACKGROUND TO REACTOR EMERGENCY CONTINGENCY PLANNING

Para

BACKGROUND	1.1-1.5
REACTOR PLANT AND OPERATION	
The Pressurised Water Reactor	1.6-1.10
Reactor Containment	1.11-1.12
HAZARD OF A REACTOR ACCIDENT	
Biological Effects of Radiation	1.13-1.14
Radiation and Contamination	1.15
The Hazards	1.16
Release of Fission Products to Atmosphere	1.17-1.18
Release of Fission Products to Water	1.19-1.20
PROTECTION OF THE PUBLIC FROM THE HAZARDS OF A REACTOR EMERGENCY	
Prior Information to the Public	1.21
Accident Management	1.22
Emergency Countermeasures	1.23-1.28
Other Countermeasures	1.29-1.31

BACKGROUND

- 1.1. The Royal Navy operates a flotilla of nuclear powered vessels, which form a vital element of the defence of the UK. The nuclear reactor offers the submarine a level of speed and underwater endurance that cannot be achieved by any alternative method of propulsion. Nuclear power is the only mechanism available to allow HM Submarines to carry out elements of the Navy's task in support of the UK's independent nuclear deterrent, anti-submarine warfare and in the protection of maritime supply routes.
- 1.2. The safety of naval reactors is given the highest priority and their design, operation and maintenance is authorised by the Secretary of State for Defence through the Defence Nuclear Safety Regulator (DNSR). He is advised on these matters by a specialist committee, the Defence Nuclear Safety Committee (DNSC), whose membership includes independent nuclear and radiation safety experts. The MoD has all aspects of the Naval Nuclear Propulsion Programme (NNPP) independently assessed by safety and reliability experts whose

performance and conclusions are also subject to independent scrutiny. The prime contribution to nuclear safety comes from engineered safeguards, good design, quality in construction, training and competence of staff in operations and maintenance.

- 1.3. Such measures ensure that the likelihood of a reactor emergency occurring is extremely remote. Indeed during more than 40 years of the Naval Nuclear Propulsion Programme there has never been a reactor accident nor has any radiation incident resulted in a significant hazard to service personnel or a member of the public. Nevertheless, in accordance with best international practice, and the Radiation (Emergency Preparedness and Public Information) Regulations 2001 it is MoD policy to have detailed reactor accident contingency plans. These plans form an additional level of public protection for use in the extremely unlikely event of an emergency.
- 1.4. Ultimate responsibility for ensuring that the appropriate steps are taken to mitigate the effects of a disaster rests with the Chief Constable of the affected area. Co-ordination of central government actions is the responsibility of a lead government department who would keep the Prime Minister and the Cabinet informed in case decisions were needed at that level. The department assuming the lead role is laid down in the Cabinet Office Civil Contingencies Secretariat document "The Lead Government Department and its role – Guidance and best Practice". For all defence related nuclear material accidents, the Secretary of State for Defence is charged with ensuring the MOD fulfils this lead department role. As such MoD will chair the National Security Council (Threats, Hazards, Resilience and Contingencies) (NSC THRC) Committee to ensure all government departments are fully involved in supporting the MoD HQ Defence Nuclear Emergency Organisation response. "Emergency Preparedness" the Guidance on Part 1 of the Civil Contingencies Act 2004, its associated Regulations and non-statutory arrangements cover all levels of the national response, from the requirement for a central government contingency plan to the local management structures that are to be implemented. The document also requires that the response to all national emergencies should involve full consultation and co-operation between relevant departments.
- 1.5. At the local level, "Emergency Preparedness" nominates the area Police Chief Constable as being responsible for chairing the Strategic Co-ordination Group normally located at police HQ. The heads of all the various agencies involved in the response will also be located at this strategic centre from which the overall implementation of the contingency plan is managed. To ensure that the MOD response is consistent with the guidelines in REPPIR and "Emergency Preparedness", and the local off-site emergency plan there is routine liaison with the relevant agencies because MoD's reactors are of a common design the basis of both the Site Specific Operators emergency plan, which deals with the actions inside the submarine, and the Off site emergency plan, which deals with public protection, are similar for all berths.

REACTOR PLANT AND OPERATION

The Pressurised Water Reactor (See diagram on page 25)

- 1.6. A Royal Navy nuclear powered vessel is driven by steam turbine machinery. However, unlike a conventional steam driven vessel, which uses fossil fuels to fire its boilers, the source of heat within a nuclear powered vessel is provided by a nuclear reactor. The type of reactor used is known as a Pressurised Water Reactor (PWR).
- 1.7. The reactor core contains fuel modules and control rods. To achieve criticality, the state in which the reactor is able to provide useful power, the control rods are slowly withdrawn from the core until the fission reaction is established. The reactor is shut down by re-insertion of the control rods. The heat produced by the fission of the fuel is removed from the core by water contained in a sealed primary circuit. This water is pumped through steam generators where the heat is used to produce steam in a separate, secondary circuit. It is this steam which is used to provide power to the submarine. The primary circuit is kept under pressure to prevent the coolant water from boiling.
- 1.8. As well as heat, the fission process also produces radioactive fission products. Unlike some civilian power reactor designs where the minor release of fission products into the primary circuit can be tolerated, submarine fuel modules are designed differently to avoid any such release during normal operation and there has never been an instance when fission products have been released from the fuel.
- 1.9. Although the fission products remain contained in the fuel, the gamma radiation that they emit is highly penetrative and thus there is a need for shielding to be fitted around the core and to be built into the submarine's reactor compartment. The shielding installed in RN nuclear powered vessels reduces the radiation levels within the manned compartments of the vessel to very low levels. Indeed the average levels of radiation dose received by members of the crew from reactor operation are less than the average natural background levels received by the UK population.
- 1.10. The heat produced by the fission process would be sufficient to melt the fuel modules if they were not cooled. Even after shutdown the radioactive fission products continue to generate heat, known as decay heat, and cooling is still necessary for some time. To overcome this, the vessel design incorporates a number of mechanisms that are able to supply cooling to the reactor. These include natural convection so that cooling would continue even on complete loss of electrical power.

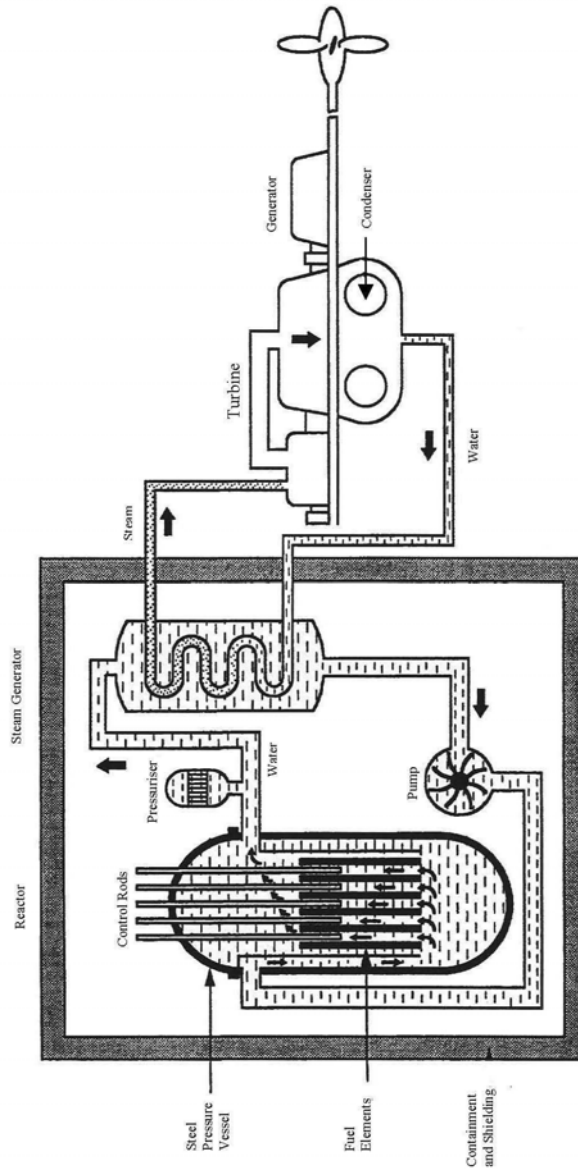
Reactor Containment (See diagram on page 26)

- 1.11. Following an accident the main potential hazard associated with nuclear reactors would come from the release of fission products from the fuel. As already stated, in order to prevent this, submarine reactor fuel is encased in strong and very high

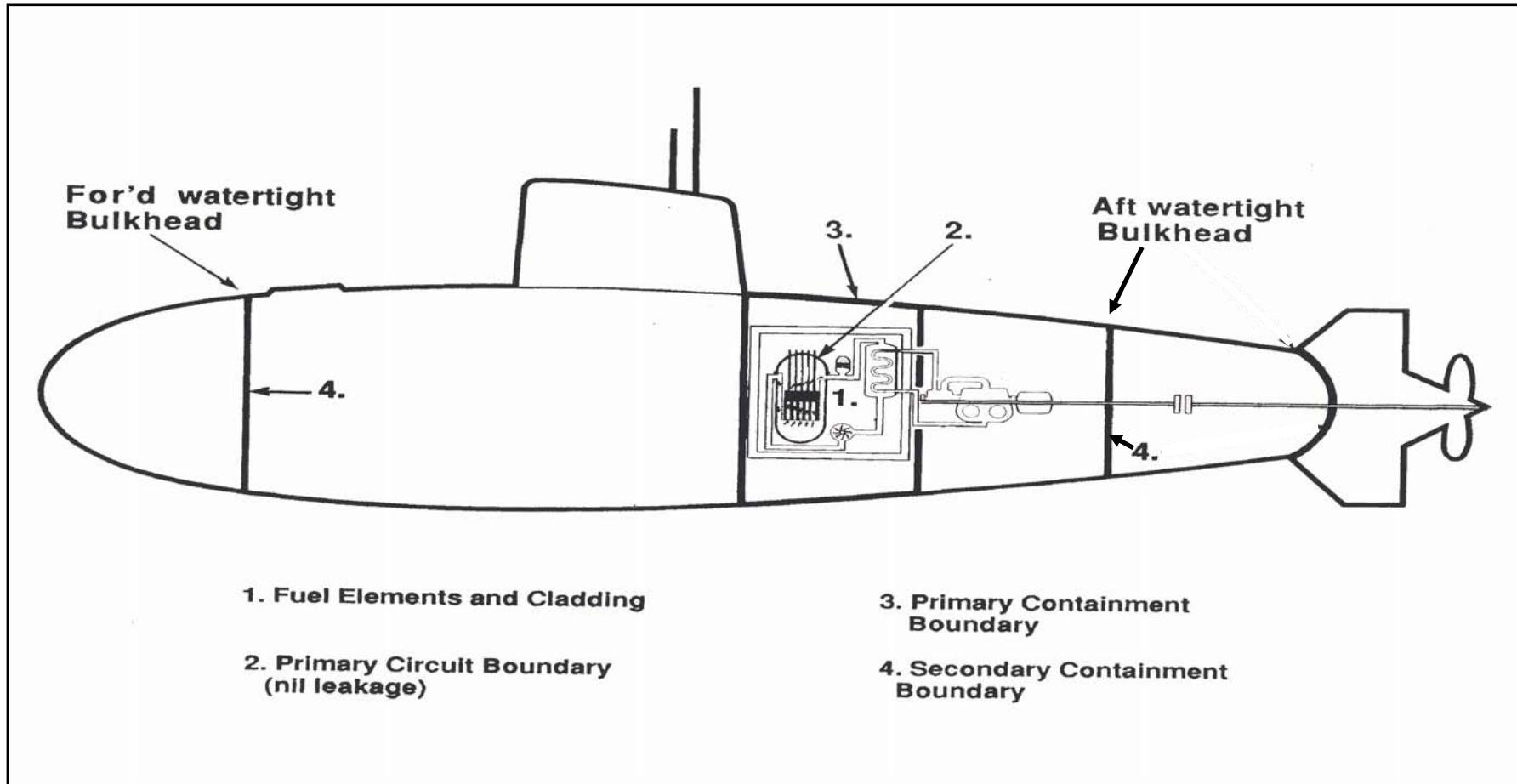
integrity cladding. In addition, beyond this protection there are a number of further barriers designed to contain the fission products should an accident situation develop. In the first instance, should the cladding fail the primary coolant system, which is a closed circuit, would contain the fission products and prevent further spread.

- 1.12 Beyond the primary coolant system, the submarine's reactor compartment is designed and constructed to meet the severe rise in pressure that could result from the very unlikely event of a complete failure of the primary system. This barrier to the release of fission products is termed the Primary Containment. Pipes, ducts and other penetrations between the primary containment and the remainder of the submarine are designed to be shut off automatically, but even if these openings were to allow a slow release of a proportion of fission products, they would still be contained by the immensely strong hull of the submarine which is, of course, designed to withstand the enormous pressures associated with operations at depth. The submarine's pressure hull is referred to as Secondary Containment.

Pressurised Water Reactor



Reactor Containment



HAZARDS OF A REACTOR ACCIDENT (See diagram on page 30)

Biological Effects of Radiation

- 1.13 It is the ionising radiation given off by the fission products that would pose the hazard following any reactor accident. As the radiation passes through the human body, ionisation events occur which may damage or kill cells. The body is of course being subjected continuously to natural background radiation and has well-developed repair processes to deal with radiation damage. Different human cell types have very different radiation sensitivities but if the radiation dose is great enough and large numbers of cells are killed; signs and symptoms of acute radiation exposure would appear. These acute radiation effects include skin burns and most severely death, but all have a defined threshold of dose below which the effect will not take place.
- 1.14 At radiation doses below the thresholds acute effects cannot occur, although cells may have been damaged with the result that exposed individuals have a statistically increased risk of the development of cancer in years to come. Reproductive cells may also have been damaged so those children born to exposed individuals may have a very small increased risk of hereditary defects. For radiation protection purposes, the increased risk of these effects is assumed to be directly proportional to the radiation dose, without any threshold.

Radiation and Contamination

- 1.15 In order to understand the hazards of a reactor accident, it is important to appreciate the meaning of and differences between the term's radiation and contamination. Even in a situation where the fission products remain contained, the penetrating radiation that they give off may still irradiate people in the vicinity. This is termed a radiation hazard. Protection against such a hazard would be afforded by reducing the time people spent close to the fission products, placing shielding between the individuals and the radiation source or increasing the distance between them and the source. If, however, personnel became contaminated with fission products, either on the surface of their body or internally by breathing, eating or drinking, then the subjects carrying the source of the radiation around with them would continue to be irradiated until that source was removed. This is termed a contamination hazard. Some protection against such a hazard can be afforded by the use of protective clothing, and skin contamination can normally be removed by simple washing.

The Hazards

- 1.16 Following a severe reactor accident involving the release of fission products outside the primary circuit, there are 2 distinct ways by which people could be irradiated:
- a) Gamma radiation from fission products retained within the submarine containment would be transmitted in all directions through the vessel's hull. The intensity of this pure radiation hazard would be diminished by both shielding and distance from the submarine, but excessive levels of

radiation could be received by people within, or in close proximity to, the vessel. This hazard is referred to as Hull Gamma Shine.

- b) Less likely is the release of some of the fission products from the submarine to the surrounding atmosphere or water. The release of fission products, the actual radioactive material, would also constitute a contamination hazard.

Release of Fission Products to Atmosphere (See diagram on page 30)

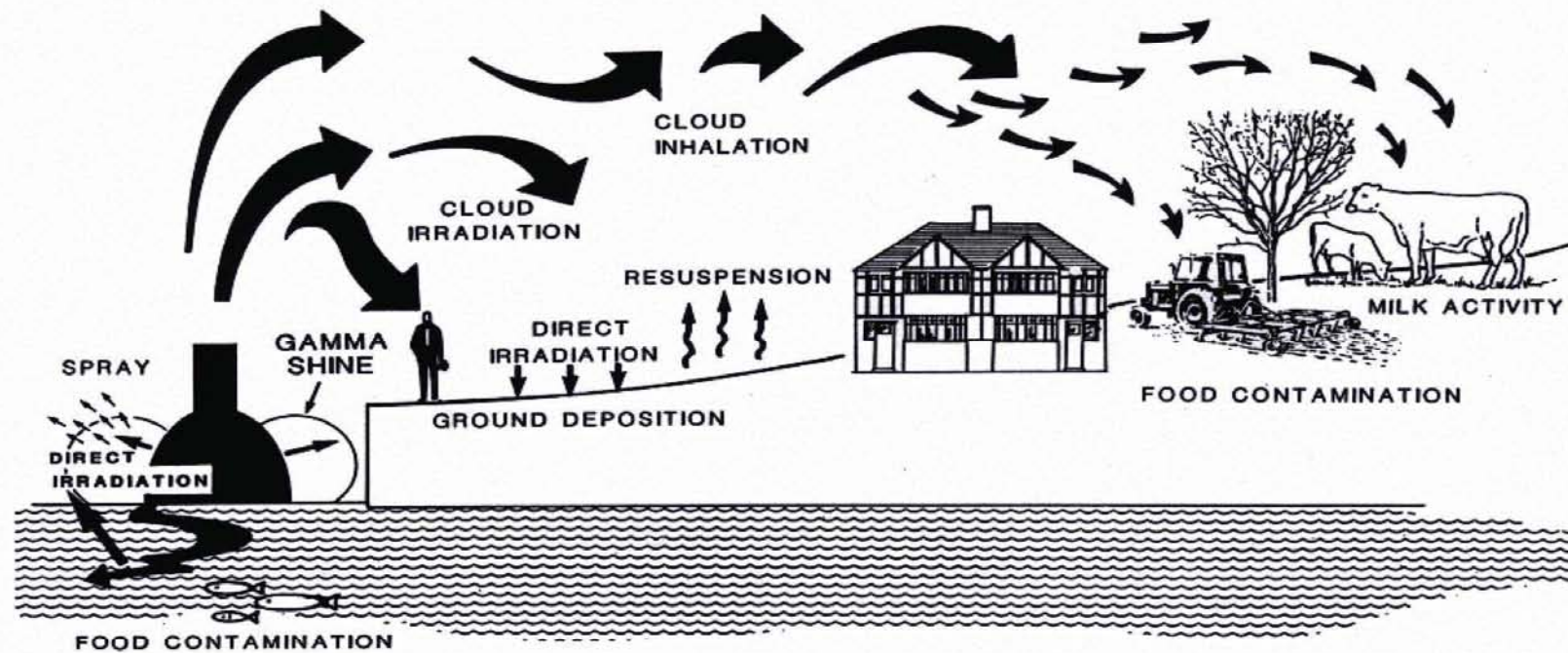
1.17 If released to atmosphere the fission products would be dispersed in the area downwind of the vessel. The extent of the hazard and the distance to which such a fission product cloud could be detected would be highly dependent on the weather conditions during the period that the release took place. Such a cloud of radioactive contamination could irradiate people in 6 distinct ways:

- a) Direct radiation from the cloud as it passes by.
- b) By inhalation of radioactive fission products from the cloud. The parts of the body receiving the greatest radiation doses would depend on the chemical and physical form of the individual fission products. It is possible that a significant dose could result from the inhalation of radioactive Iodine, which is readily absorbed and concentrated, in the thyroid gland. Another group of fission products, being largely insoluble, would remain in the lung. A third main group would be readily absorbed but would not be concentrated in any particular organ.
- c) Direct radiation from fission products, which have been deposited on the ground. This route, like a) above, would result in fairly uniform whole body radiation exposure.
- d) Direct radiation from beta and gamma emitting fission products, which have been deposited on the skin.
- e) Inhalation of fission products that have been re-suspended after deposition on the ground. This route has been shown to be insignificant compared with doses that would result from b and c.
- f) Consuming food or drink, which has been contaminated by fission products. As a radioactive cloud moves downwind, some of the radioactivity could be deposited onto the surface of food, either growing in fields or exposed on market stalls etc. This superficially contaminated food would cause internal contamination to those who consumed it in the immediate post accident period. Fission products deposited on the ground may also be taken up by growing plants and animals, which may be eaten directly by man, causing subsequent internal contamination and radiation dose. The contaminated plants and animals may not be eaten directly by man, but may enter a food chain and pass through a number of stages before entering the human diet. For example, radioactive Iodine deposited on pasture would be concentrated in the milk of grazing dairy animals, which could present a hazard if the milk was consumed. Peak levels of radioactive iodine in milk would be reached 2 days after the

release, with levels decaying over the next several weeks. After the decay of the Iodine, the dominant hazard via the ingestion route would be the take-up of longer lived fission products into the food chain.

- 1.18 In the very unlikely event of a release to atmosphere the principal short-term hazards would be direct irradiation from the cloud, inhalation of fission products and irradiation from ground deposition. Food chain contamination, although representing less of a hazard initially, would come to be of increasing significance in the longer term.

Hazards of a Reactor Accident



Release of Fission Products to Water

- 1.19 The radiation effects from fission products released into water would be highly dependent on the state of the tide and the characteristics of the estuary into which the release took place. There are 4 ways in which people could receive a dose of radiation following such a release:
- a) Direct radiation from the water either to those immersed within it or to those in its immediate vicinity.
 - b) Ingestion of the water or inhalation of spray.
 - c) Irradiation from the deposition of fission products on banks and areas uncovered by the tide.
 - d) Fission product contamination of marine food chains.
- 1.20 Following a reactor accident, the overall hazards to the population resulting from a fission product release to water would be on a smaller scale than for the same magnitude of release to atmosphere. Significant hazards could arise in the localised area around the contaminated water, however, and this area would drift with the tide gradually diluting and dispersing. Food chain contamination could become of increasing significance in the longer term, as would the accumulation of radioactivity in the sediments and mudflats.

PROTECTION OF THE PUBLIC FROM THE HAZARDS OF A REACTOR ACCIDENT

Prior Information to the Public

- 1.21 Public Information Leaflets will be distributed to all premises within 2km of Portland Port. The leaflets will inform members of the public what to do in the extremely unlikely event of a nuclear reactor accident in the port. This guide has been produced by WDWP Council, in consultation with the Ministry of Defence and relevant Health Authorities, in accordance with the Radiation (Emergency Preparedness and Public Information) Regulations 2001.

Accident Management

- 1.22 If a reactor accident were to occur, emergency procedures would be followed by the submarine crew and shore engineering support with the aim of preventing or minimising core damage, maintaining the integrity of containment and minimising any release of fission products. This accident management strategy would form an important element in the overall protection of the public.

Emergency Countermeasures

- 1.23 The entire population has always been constantly exposed to naturally occurring

radioactivity, although as a general rule the levels of this radiation are so low as to be considered insignificant. In the event of a reactor accident, increases in the radiation level above natural background would result and probably continue unless some form of intervention was to take place. For a serious accident, intervention to reduce doses could be required in the form of emergency countermeasures, which are implemented in the surrounding population. Since the implementation of widespread countermeasures, even in accordance with a pre-planned scheme, is not a risk-free activity, it follows that there must be some criteria on which to base any decision to take such measures following a reactor accident.

- 1.24 The criteria for the implementation of emergency countermeasures following a reactor accident are based on the principles that the countermeasures should achieve more good than harm, and that introduction and withdrawal of the measures should be aimed to provide optimum protection. It is the risk to the individual, which is considered of greatest importance in determining the need for emergency countermeasures. The basic requirements for implementation criteria are as follows:
- a) Countermeasures should be introduced to ensure that no individual suffers acute effects of radiation.
 - b) The increase in probability of the individual suffering cancer or hereditary effects from radiation exposure in the absence of the countermeasure should be balanced against the detriment from the countermeasure itself to determine the optimum protection of the individual.
- 1.25 Within the UK, the Public Health England Radiation Protection Division (PHE - RPD) provides guidance on emergency countermeasures to protect the public following reactor accidents. Basic methods of reducing radiation exposure such as time, distance and shielding are still relevant in the mass countermeasure situation but they are incorporated into three countermeasures that are applicable to a population:
- a) Sheltering: The public remaining indoors with doors and windows shut.
 - b) Stable Iodine Administration: If tablets containing stable Iodine (non-radioactive) are taken prior to or within a few hours of internal contamination with radioactive Iodine, the resultant radiation dose to the thyroid gland would be reduced substantially.
 - c) Evacuation: In the context of nuclear emergency contingency planning, the term evacuation refers to the movement of people out of an area as an emergency measure to provide short-term protection for durations of up to a week. If carried out prior to the existence of any hazard, evacuation would prevent almost all the radiation exposure that would have resulted. The adverse effects and difficulties of population evacuation, however, are

significantly greater than for shelter.

- 1.26 The PHE-RPD has recommended dose criteria for the implementation of these emergency countermeasures in an accident situation. These intervention levels are known as Emergency Reference Levels (ERLs), and are specified in terms of the dose to an individual, which would be averted by taking the relevant countermeasure. ERLs are specific to each countermeasure because the detriment associated with each countermeasure is different, and are promulgated as a range between two specified values. If doses that can be avoided by the measure are below the lower level for that measure, then the PHE-RPD advises that the countermeasures should not be introduced because it would be unlikely to be justifiable. If doses that could be avoided were estimated to exceed the upper level, then the PHE-RPD would expect every effort to be made to introduce the measure. The intervention level selected for a specific situation should therefore lie between the upper and lower ERL values.
- 1.27 PHE-RPD also recommends consideration of precautionary countermeasures to be implemented automatically particularly where the potential risks are significant, to provide protection at an early stage without requiring the full circumstances of the accident and of any release to be determined.
- 1.28 In considering emergency countermeasures following a release of radioactivity to the environment, it is important to recognise that radiation exposure or contamination does not necessarily end at the distance to which countermeasures have been implemented. It is simply that extension of emergency countermeasures beyond the implementation distance would not be justified and, indeed, could pose more of a threat to the public than the radiation doses that they are intended to avert.

Other Countermeasures

- 1.29 In addition to emergency countermeasures for which ERLs are promulgated, a range of other longer-term measures may be applicable to protect the public following a reactor accident.
- 1.30 Food Controls. In the UK the public would be protected from the hazards of fission products in food stuffs by the control and disposal of the contaminated material. Intervention levels for food promulgated by the European Commission are mandatory in the UK and are set at very low levels, based on doses that individuals would receive if they consumed the food for a year following the accident. It is probable; therefore, that in the event of an accident involving a release of fission products, food and farm restrictions could extend to distances significantly greater than those to which emergency countermeasures were required
- 1.31 Relocation. Relocation is the term used to describe the movement of the public

from contaminated areas to avoid long term radiation exposure or to allow decontamination to take place. It is therefore distinct from evacuation, which is an emergency countermeasure aimed at providing immediate public protection. There are no national criteria for the implementation of relocation. Any requirements for relocation would be determined by discussion among relevant local and national agencies with the aim of optimising the protection of the public. The protection provided by adequate emergency countermeasures would allow the required time to assess the need for relocation.

PART 2

ORGANISATION AND ACTIONS ON DECLARATION OF AN EMERGENCY

Para

LOCAL LIAISON ARRANGEMENTS

Definition of 'on-site' and 'off-site'	2.1
Definition of Portland Port Limited (PPL)	2.2
Operational Berth Issues Group (OBIG)	2.3

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Categorisation of Berths	2.4
Location of Berths	2.5
Nuclear Vessel Movement Principles	2.6

PLANNING ZONES

Exclusion Zone (EZ)	2.7
Automatic Countermeasure Zone (ACMZ)	2.8
Detailed Emergency Planning Zone (DEPZ)	2.9
Extendibility Zone	2.10
Beyond the Extendibility Zone	2.11
Site Specific Intervention Levels (SSILs)	2.12
	2.13

ACCIDENTS

General	2.14
Nuclear Reactor Emergency General	2.15
Emergency Classifications	2.16-2.20

NUCLEAR EMERGENCY RESPONSE ORGANISATION

Portland Nuclear Emergency Response Organisation (NERO)	2.21
Naval Emergency Monitoring Support Organisation	2.22
Radiation Data Management Cell	2.23

COMMUNICATIONS AND ALERTING PROCEDURES

Declaration of a Radiation Emergency and MoD Alerting	2.24
The NERO state of readiness	2.25
Communications	2.26
MTPAS	2.27
Cascade Alerting System	2.28
CLIO - Central Logging of Information for Incidents	2.29

SUMMARY OF EMERGENCY ACTIONS

Actions required on receipt of an Off-Site Nuclear Emergency Alert	2.29
Access to Portland Docks	2.30

COMMUNITY EFFECTS

Distribution of PITs tablets	2.31
Medical Services to the Public	2.32
Water Supplies	2.33
Food Supplies	2.34
Evacuation, Reception and Accommodation	2.35
Relocation	2.36
Restrictions on Land Access	2.37
Restrictions on Waterborne Access	2.38
Training	2.39
Exercising	2.40

CLAIMS PROCEDURES & REGISTRATION OF PERSONS

2.41

AFFECTED BY AN OFF-SITE NUCLEAR EMERGENCY

Procedures for Claims for Injury, Damage or Loss	2.42
Registration of Persons affected by an Off-Site Nuclear Emergency	2.43

ANNEXES TO PART 2

Functions of Local Nuclear Emergency Response Organisation	2A
Personnel	
Aide Memoir for Submarine Commanding Officer/Incident Officer, Portland Port.	2B
Aide Memoir for Military Co-ordinating Authority (MCA)	2C
Aide Memoir for Police Tactical Commander	2D
Portland Port Nuclear Emergency Instructions	2E
Exclusion Zone Reception Centre (EZRC)	2F
Additional Crew Instructions in the event of nuclear emergency	2G

LOCAL LIAISON ARRANGEMENTS

2.1 Definition of “on-site” and “off-site”

For the purposes of this plan the operator is the Royal Navy. A full definition of the term operator can be found in the glossary.

- a) “On-site” means the “premises”, as set out in Regulation 2(1) in Radiation Emergency Preparedness and Public Information Regulations 2001, which in the case of Portland Port Ltd (not being a nuclear licensed site) is the nuclear powered vessel at its geographical location within the port. The MOD has produced a Site Specific Operators Emergency Plan for the premises, which links in with the Off-Site plan.
- b) “Off-site” means the area outside the nuclear powered vessel including the detailed emergency planning zone. In accordance with Regulation 9 (1), as defined in the Radiation (Emergency Preparedness and Public Information Regulations 2001, this zone is determined by the HSE and has been set to cover an area extending to at least 1.5 km from the vessel.

2.2 Definition of Portland Port Ltd

For the purposes of this Plan, Portland Port Ltd is as defined in Part 2 Section 4 of the Port Harbour Revision Order 1997, Statutory Instrument 2949.

The area within which the Company shall have jurisdiction for the purposes of pilotage under Part 1 of the Pilotage Act 1987(a) shall include (in addition to the harbour) so much of the area outside the harbour as lies to the west of a straight line drawn from a point at Latitude 50°32.922'N, Longitude 02°24.867'W (Grove Point, Portland) to a point at Latitude 50°37.450'N, Longitude 02°19.317'W (White Nothe, Weymouth), but excluding Weymouth Harbour.

2.3 Operational Berth Issues Group (OBIG)

The OBIG consists of representatives from the local authority, Ministry of Defence, Royal Navy, emergency services and local representatives of central government departments. The representatives are shown on page 9. Its purposes are:

- a) To inform the public on the scale of any potential risks of radiation hazards that may be involved in operating nuclear powered vessels.
- b) To maintain and review the Off-Site Emergency Plan for Portland.
- c) To ensure that an effective emergency response organisation is in place to respond to a Portland off-site reactor emergency, protect the public and mitigate the consequences of any potential accident in accordance with the

requirements of REPPIR 2001.

- d) The OBIG has the responsibility for reviewing the plan and a checklist of actions and procedures that must be in place before any visit of a nuclear powered vessel can occur. Included in that checklist will be that a full risk assessment has been undertaken and that appropriate 24 hour security will be in place around the submarine including waterside.
- e) The OBIG meets at least annually but members may request the Chairman to call meetings at a greater frequency, if required.
- f) To encourage public representation on OBIG, with open invitations to Portland Town Council members (included on the distribution list).
- g) To liaise with the members of the public as necessary in respect of public information issues, and ensure a public campaign is carried out regularly, at least one month before every Exercise.

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2.4 Categorisation of Berths

- a) The requirements to maintain reactor safety and to have a site-specific local accident plan, determine that all berths used by nuclear powered vessels must be assessed and their use endorsed by the Defence Nuclear Safety Regulator. The berth assessment process examines the safety aspects of navigational hazards, the provision of tugs and other facilities and the existence of any other hazards in the local area. It also contains a description of the population distribution in the area and a brief summary of the accident organisation. Berths are located so that there are few members of the general public living in the surrounding areas, enabling an effective evacuation of persons from the **Automatic Countermeasures Zone – ACMZ** (approximately 0.5 km zone – see Figure 1, p.44). Special consideration is given to the proximity of public utilities such as schools and hospitals. If there are practical benefits the ACMZ could be reduced to 200m for controlled evacuation of personnel with sheltering out to 400m (as advised in NEAG Paper 02/09).
- b) Berths cleared for use by nuclear powered vessels are categorised in terms of their use.
 - 1. Authorised Berths are cleared for the building, commissioning, refitting, re-fuelling or de-fuelling of nuclear powered vessels or for the repair and maintenance of the nuclear plant together with associated tests and trials.
 - 2. Operational Berths are cleared for operational or recreational visits or stand-

offs by nuclear powered vessels. Nuclear implicated repairs are not normally permitted and any change would require specific agreement. The Portland berth is this type.

c) During all periods when a nuclear powered vessel is at a cleared berth there is a requirement for a number of specialist personnel to be located in the area for the duration of the visit. They include:

1. Elements of Nuclear Emergency Monitoring Team (NEMT), able to co-ordinate and carry out radiation monitoring in the event of an accident
2. A qualified Radiation Protection Specialist.
3. A MoD nuclear engineer able to provide technical advice.
4. Personnel to assist with PITs distribution.
5. Personnel to operate the Exclusion Zone Reception Centre.

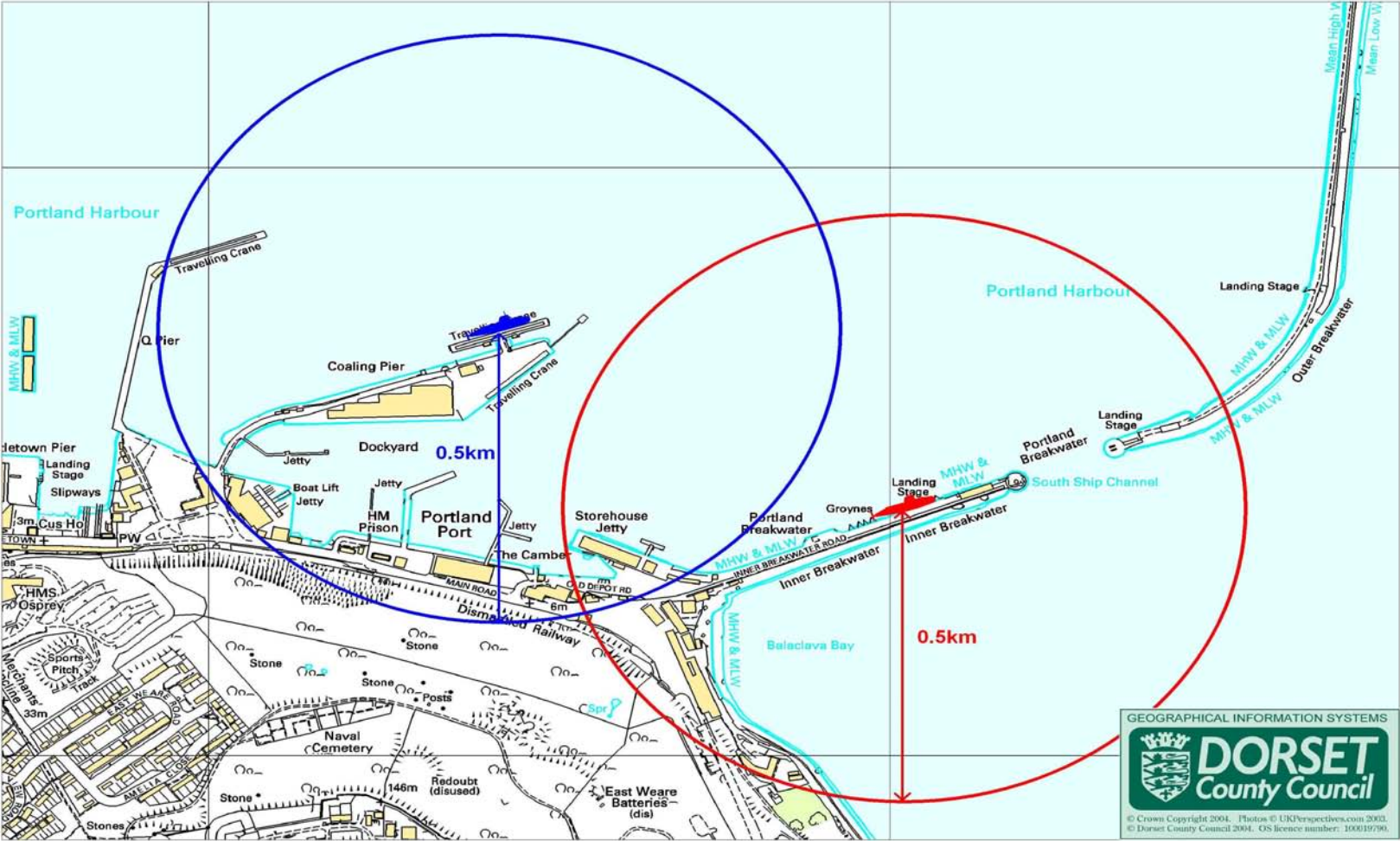
Details of the required support services and their operating procedures are contained in an additional document – MoD Support to the Site Specific OEP.

A diagram of the port showing the location of the Nuclear Powered Vessel Berths is at page 44.

2.5 Location of Berths

For location of Berths please see Figure 1 over leaf.

Figure 1 – Location of the Operational Berths at Portland



2.6 Nuclear Vessel Movement Principles

The primary hazards associated with berthing and movement operations are from collision or grounding. The following principles apply for the movement of nuclear powered vessels bound for Portland when within Portland Port Harbour Control area.

- a) All vessels are to enter and leave the port via the East Ship Channel. They are to give Portland Harbour Control 2 hours notice of their Estimated Time of Arrival (ETA) at the Pilot Station together with their anticipated arrival draught.
- b) Movement to be operationally approved by Portland Port Harbour Master and promulgated in the daily movements signal.
- c) An authorised Portland Pilot will be embarked.
- d) Attended by at least two tugs, transiting between the Pilot station and the berth. Additional tugs as required ensuring safe manoeuvring and separation from other manoeuvring vessels within the vicinity.
- e) Carried out with adequate navigational aids available.
- f) Conducted within established weather and tidal criteria.
- g) Movements of other vessels in the vicinity of nuclear powered vessels are controlled by Portland Harbour Control in a manner that does not put a NPV at risk.
- h) Adequate security arrangements to be put in place prior to, and during the visit.

PLANNING ZONES

2.7 Planning Zones

The basic reactor accident plan used at all berths cleared for use by nuclear powered vessels specifies 4 Zones where differing actions would take place in the event of an accident. The zones are shown on page 48.

2.8 The Exclusion Zone

The Exclusion Zone is the vessel itself in which people would be at greatest risk from the hazards of an accident. Within this zone, all people are accounted for and are provided with equipment, which can assess their radiation dose. An Exclusion Zone Reception Centre (EZRC) for personnel evacuating from the zone will be set up and personnel evacuated to this centre will have access to medical, radiation protection, monitoring and decontamination facilities. The EZRC is located adjacent to the Port Offices.

2.9 The Automatic Countermeasures Zone (ACMZ)

The Automatic Countermeasure Zone is beyond the Exclusion Zone and is where automatic actions would commence immediately on the declaration of an accident, irrespective of classification. Within this zone all people not essential to the management of the accident would be evacuated and issued with Potassium Iodate tablets as directed. Evacuation and alerting of an incident would occur via loud hailer announcements by Portland Port. All people working within this zone must be given instructions on what action they should take in the event of an accident. The extent of the automatic countermeasure zone is normally set at a distance of 0.5 km from the vessel in all directions. (See page 48). If there are practical benefits the ACMZ could be reduced to 200m for controlled evacuation of personnel with sheltering out to 400m (as advised in NEAG Paper 02/09) or by use geographic boundaries, i.e. the secure boundary for Portland Port.

2.10 Detailed Emergency Planning Zone – DEPZ

This zone includes the Automatic Countermeasures Zone and extends to a total radius of 1.5 km from the vessel as stipulated by the Health and Safety Executive. The probability of countermeasures being required within this zone is very low in absolute terms. To provide the greatest practicable level of public protection it is a requirement that the MoD notify civil authorities specifically at the commencement of an Off-Site Nuclear Emergency (OSNE) so that sheltering (within 1.5 km) and Potassium Iodate tablet distribution (in the downwind sector to 1.5 km) can be implemented. The Potassium Iodate tablet distribution plan is at Part 5. The MoD and Maritime and Coastguard Agency will assist civil authorities as required in implementing these countermeasures.

2.11 Extendibility Zone

This zone extends to a total radius of 10km from the vessel from the edge of the Detailed Emergency Planning Zone (DEPZ, see page 48). Assessments of the consequences of reactor accidents demonstrate that emergency countermeasures would only be required beyond the DEPZ in the very improbable event of a large release of fission products to the atmosphere. The probability of this event is so low that detailed emergency plans are not required. In view of the need for some pre-planning to be carried out to achieve effective implementation outline contingency plans for the DEPZ provide a basis for the further extension of countermeasures. The zone extends in all directions around the DEPZ but following an accident it is anticipated that the requirement for

countermeasures would be confined to the downwind areas only. Advice on the need for these measures would be based on a technical assessment of the way in which the accident was developing and on an assessment of doses likely to be received by the public.

2.12 Beyond the Extendibility Zone

The probability of any requirement for emergency countermeasures is so remote that specific plans for emergency public protection are not required. At these distances the main considerations would be monitoring of pasturage contamination and of foodstuffs. Any requirements for foodstuff restrictions would be based on EC Regulations which are mandatory in the UK and which are set at very low levels of contamination. As a result, food restrictions are likely to extend far beyond the area over which other safety measures are required, and will continue to be applied even when the immediate danger to the public from direct irradiation has ended. This is unavoidable but will need to be carefully explained in the context of the co-ordinated effort in dealing with the emergency.

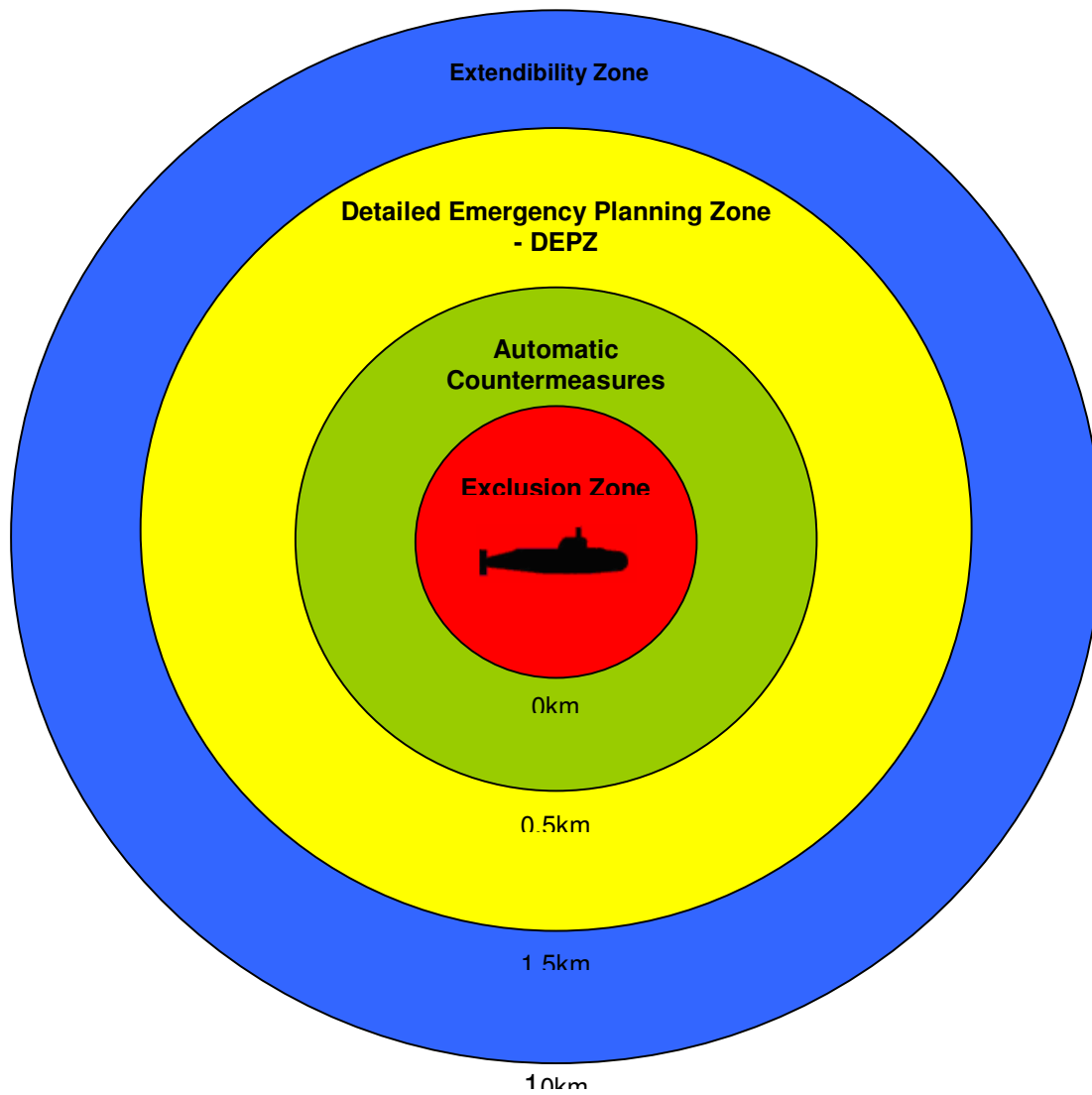
2.13 Site Specific Intervention Levels (SSIL's)

Any extension of countermeasures beyond those pre-planned within the 1.5km DEPZ should be based on a comparison of projected individual doses with Site Specific Intervention Levels (SSILs). Like ERLs, SSILs refer to the dose that can be averted by taking the countermeasure. SSILs should be selected from within the ERL range but should be drawn up locally in order to reflect local geography and other factors. SSILs should exist for evacuation within the DEPZ, and for other countermeasures within the Extendibility Zone. The agreed SSILs for the implementation of countermeasures in the Portland plan are as follows:

COUNTERMEASURE	SITE SPECIFIC INTERVENTION LEVEL (mSv)
Shelter	ERL 3 mSv (Whole body dose)
Potassium Iodate Tablets	ERL 30 mSv (Thyroid dose)
Evacuation	To be decided at time of accident when all factors can be considered

The decision to evacuate will be taken in conjunction with the Scientific and Technical Advisory Team (STAC) and is standard procedure. As the need for evacuation would be an extension to the detailed plan then the intervention level (upper or lower ERL) would depend upon the circumstances pertaining on the day.

Figure 1: NUCLEAR REACTOR PLANNING ZONES



ACCIDENTS

2.14 General

As described in Part 1, a reactor is designed and operated in such a way that it is extremely unlikely that it would fail in a dangerous manner. However, it is theoretically possible that some sets of circumstances could lead to an accident in which radiation and/or radioactive contamination would be present outside the vessel.

2.15 Nuclear Reactor Emergency - General

General

It is impossible for an emergency in a naval pressurised water reactor to result in a nuclear bomb type explosion. However, it is theoretically possible that some sets of circumstances could lead to an emergency in which radiation and/or radioactive contamination would be present outside the vessel. The operator has undertaken an assessment of the risk associated with potential emergencies through the identification of a Reference Accident. A Reference Accident is defined as the worst-case accident which, although unlikely, is realistically possible.

In accordance with REPIIR the Reference Accident forms the basis of emergency response plans for the protection of the work force and the public who may be affected. The HSE ONR have determined that an off-site emergency plan is required for the protection of the public within an area extending to a distance of not less than 1.5km from a submarine berth.

Nuclear Reactor Emergency

It is impossible for an emergency in a naval pressurised water reactor to result in a reactor explosion. The only reactor emergency that can result in a hazard to personnel outside the vessel is one, which leads to a release of the fission products normally retained within the fuel elements in the reactor core.

As part of the safety assessment process, which is established to ensure that all reasonably practical measures have been taken to prevent emergencies, detailed analyses are carried out into the mechanisms by which a reactor emergency could be initiated, and the performance of the many safety systems. The results of such analyses provide quantitative estimates of both the probability of emergencies and their consequences in terms of the magnitude of any release of fission products into the environment and the resulting doses. The results of this work have been independently assessed and endorsed by the Defence Nuclear Safety Committee (DNSC).

Reference Accident Characteristics

- A number of cautious assumptions are made about the radioactive material inventory and other characteristics of the reactor.

- A leak occurs in the primary cooling circuit of the reactor, which cannot be isolated and is beyond the capacity of coolant make-up systems.
- A series of unlikely engineering and other failures also occur.
- The primary coolant leak coupled with the other failures lead to damage to the fuel within the reactor after more than 3 hours, resulting in elevated gamma radiation levels around the reactor.
- The fuel damage in turn releases some radioactive material from the reactor. This is largely contained within the submarine but a small proportion may be released to the environment over the following 1-2 days.
- The radioactive material would be carried downwind and would therefore present a hazard in the downwind zone only. This hazard would arise principally via inhalation initially.

The development of contingency plans takes account of the full range of potential emergency scenarios, including those having a low probability of occurrence. This is consistent with International Commission for Radiological Protection (ICRP) recommendations. In order to provide some context for the plans described in this document, the assessed probabilities of emergencies that would give rise to particular consequences are included here for information.

a) The frequency of emergencies for which the upper ERL for evacuation would be exceeded beyond the Automatic Countermeasure Zone is once in 50,000 years of continuous reactor operation.

b) The frequency of emergencies for which the upper ERL for shelter or Potassium Iodate tablet distribution would be exceeded beyond the Pre-Planned Countermeasure Zone is once in 50,000 years of continuous reactor operation, and for evacuation once in 200,000 years.

c) The frequency of emergencies for which the upper ERL for any emergency countermeasure would be exceeded beyond the Extendibility Zone is once in 200,000 years of continuous reactor operation.

In respect of a-c above it is understood that recent (06/09) MoD/HSE assessments of reference accident will make this frequency less, rather than more, likely.

2.16. Emergency Classifications

Definitions of notifiable alerts are as follows

2.17 Reactor Safety Alert (RSA) – an abnormal event which poses a potential threat to, or causes serious concern for, reactor plant safety. It is emphasised that a Reactor Safety Alert does not constitute a reactor emergency or require the initiation of either the On-Site or Off-Site plans, albeit Portland Port and the Local Authority will likely be informed as a precaution.

2.18 “Off-Site Nuclear Emergency” (OSNE) - a hazardous condition which requires the implementation of urgent countermeasures to protect the public.

2.19 OSNE Qualifiers – The following qualifiers may be used as appropriate for an OSNE:

Radiation Hazard Confirmed – an Off-Site Nuclear Emergency in which a radiation hazard has been detected.

Release of Radioactive Material Confirmed – an Off-Site Nuclear Emergency in which a release of radioactive material to the environment has been detected.

2.20 Any OSNE with or without a qualifier would trigger the Off-Site Emergency Plan:

An “Off-Site Nuclear Emergency” (OSNE) refers to a situation where an engineering judgement dictates that fuel plate damage can occur and measures must be put in place to protect the public. This classification definition allows for the precautionary implementation of contingency plans in a period before any hazard exists.

At an “Off-Site Nuclear Emergency” (OSNE) -Radiation hazard confirmed- fission products have been released from the fuel to cause a radiation hazard but containment remains effective in preventing the release of the fission products to the environment outside the pressure hull. It is normally an indicator of severe core damage.

An “Off-Site Nuclear Emergency” (OSNE) – Release of radioactive material confirmed - is declared when a release of fission products outside the submarine has been detected.

While it is convenient to discuss emergency types in terms of emergency classification, in the remote possibility that a severe emergency were to develop it should be recognised that the classification could change with time as the emergency progressed, or as more information became available. An “Off-Site Nuclear Emergency” notification might refer to an initial event, to be followed by a qualified “Radiation Hazard Confirmed” notification report as a hazard inside the submarine was detected followed by a qualifier of “Release of Radioactive Material Confirmed” as monitoring outside the vessel detected that a release had occurred. Generic assessments however demonstrate that for a given classification of emergency the most likely eventual outcome is that the emergency will not develop to the next classification/qualifier.

The multi-agency Off-Site Emergency Plan, including the implementation of automatic countermeasures should be instigated in full or such parts as necessary following any declaration of a reactor emergency, irrespective of Classification. This is also a requirement of the Radiation (Emergency Preparedness and Public Information) Regulations 2001 (REPPiR). On receipt of a notification of an “Off-Site Nuclear Emergency”, both the Operator’s on-site and the off-site plans will be activated by means of the cascade call-out.

NUCLEAR EMERGENCY RESPONSE ORGANISATION (NERO)

2.21 Portland Nuclear Emergency Response Organisation (NERO)

- a) Purpose. (1) The purpose of the NERO is to initiate, and subsequently control, the emergency procedures and appropriate actions in the event of a nuclear reactor accident at Portland Port. (2) The NERO's role is to protect the public and mitigate the consequences of an accident.
- b) Overall Structure. The basic structure of the NERO is shown on page 54. It is structured around 3 principal levels of Command and Control in accordance with the central government guidance document "Emergency Preparedness".
- c) Operational Level (Bronze). Within Portland Port this comes under the co-ordination of the Portland Harbour Master's representative whose Headquarters are based in the Britannia Terminal. The Portland Harbour Master's representative will act as Incident Officer, Portland Port and be advised by the on-site Ministry of Defence representative. When alerted by the cascade call-out, a Submarine Technical Advisor and a Radiation Protection Specialist from the Ministry of Defence will deploy to the Operational level (located on the Top Floor of the main Port building in Harbour Control), as will representatives from the Emergency Services to give support. The Operational Level organisation looks inwards and is responsible for directing the activities within the off-site (Portland Port) area. The organisation also provides support to the operator's emergency plan. Also at the Operational level will be the Emergency Monitoring Headquarters (EMHQ) which is a mobile HQ which sets up adjacent to Harbour Control and provides facilities to support the radiological monitoring task undertaken post accident by the Nuclear Emergency Monitoring Team (NEMT) (for further details relating to Radiation Protection and Monitoring see Part 4).

All activities undertaken at the operational level will be in co-ordination with the Tactical and Strategic levels of command and will operate within the policies set at those levels.

- d) Tactical Level (Silver). The purpose of the tactical level of management is to determine priority in allocating resources, to plan and co-ordinate all resources involved with the response undertaken, and to obtain other resources as required Commanded by a Senior Police Officer and based at the Tactical Command Centre (TCC) (See page 55 for location). The TCC comprises Local Government Cells as well as those from the Emergency Services.

The Tactical Command Centre should have the following equipment:

Small scale Ordnance Survey map showing the area out to 30km radius
(1: 50,000)

1:10,000 and 1: 2,500 maps centred on Portland Port

Information available on the following:

- Hospitals

- Schools
- Open markets and bulk food storage depots.

Note: Dorset Police will decide the location of the TCC on advice given by the Incident Officer at Portland Port which could result in the backup TCC location (See page 55) being activated in the event that the main location was not suitably available due to unforeseen circumstances.

The purpose of the tactical level of management is to determine priority in allocating resources, to plan and co-ordinate all resources involved with the response undertaken, and to obtain other resources as required.

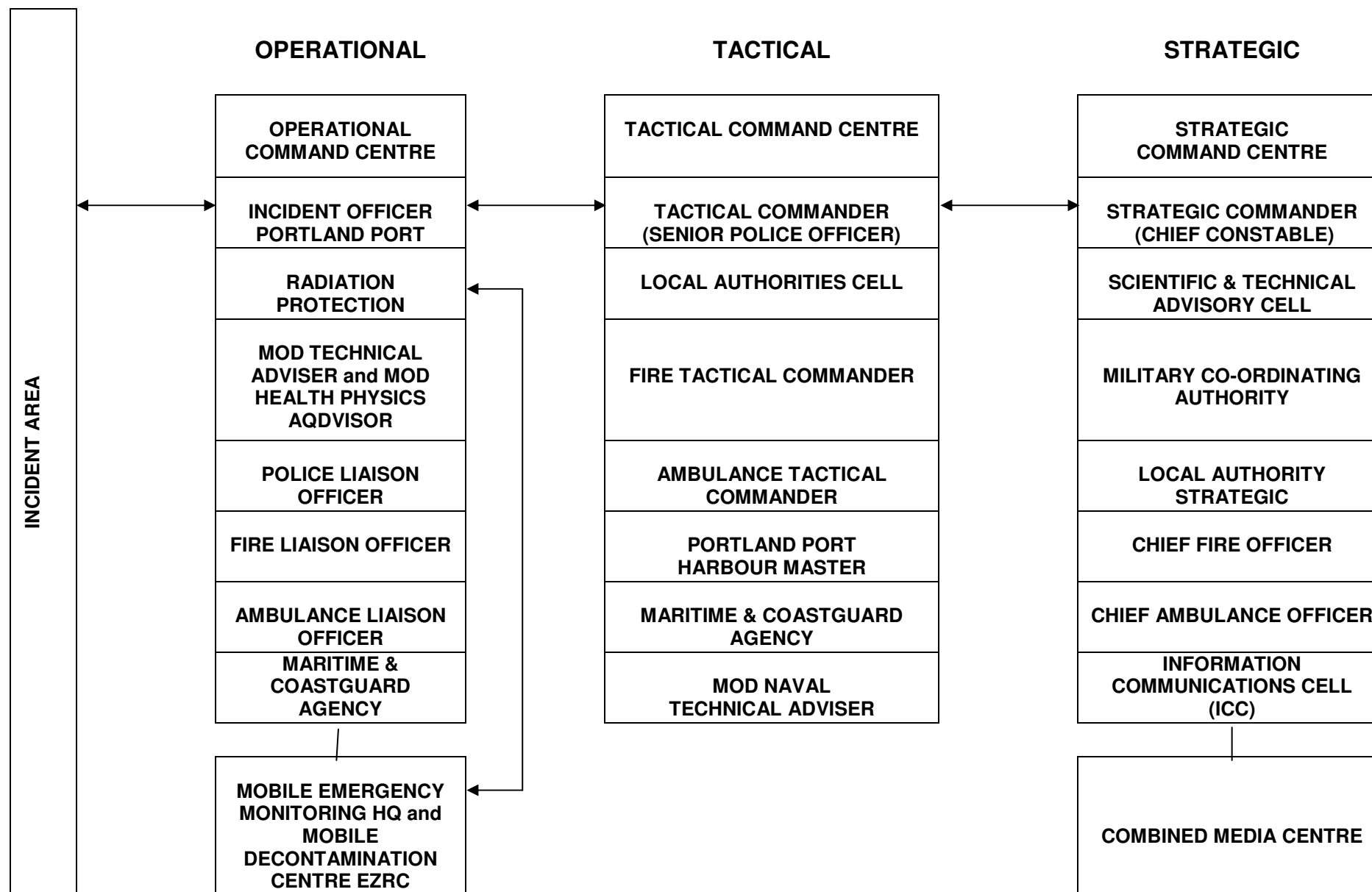
e) Strategic Level (Gold).

The purpose of the strategic level of management is to:

1. establish a framework of policy within which tactical commanders will work
2. give support to the tactical commander(s) by the provision of resources
3. give consideration to the prioritisation of demands and health requirements
4. determine plans for the return to a state of normality; the recovery phase
5. consider intermediate time health requirements and monitoring once the incident is brought under control
6. liaise with the Government Offices and Ministers during the incident.
7. address long term recovery issues

The Chair of the group will change to the Local Authority Chief Executive at a time when the emergency phase is over and the priority is on remediation and recovery. The centre may also change site at that time e.g. to Weymouth or Dorchester. The Strategic Command Centre (See page 55) will be manned by the Emergency Services, the Scientific & Technical Advisory Cell (STAC), Local Authorities, Government Agencies, Military Co-ordinating Authority (MCA) and an Information, Media and Communications Group (ICC). The Public Health Director leads the STAC along with a team of health advisers, Environmental Health Officers, radiological advisers and Environment Agency. The STAC chair sits on the SCG. The Naval Base Commander (Devonport) is the appointed MCA and is supported by a team of technical and radiological advisers. The ICC – Information and Communications Cell is chaired by the Dorset LRF Warning and Informing Group chair person. The ICC chair sits on the SCG. The alternative SCG location (See page 55) may be activated upon the request of Dorset Police in the event that the main location becomes unavailable.

NUCLEAR EMERGENCY RESPONSE ORGANISATION



LOCATION OF COMMAND AND CONTROL CENTRES

Operational Berth – Command settings locations			
Command location	Primary location	Secondary Location	Third coordination option
Strategic Command Centre	Police Head Quarters, Winfrith Technology Park - DT2 8DZ	Dorset Fire and Rescue Head Quarters, Poundbury - DT1 3SU	BDPLRF Teleconferencing Arrangements
Tactical Command Centre	Police Head Quarters, Winfrith Technology Park - DT2 8DZ	Dorset County Emergency Centre, Library Building Colliton Park, Dorchester – DT1 1XJ	BDPLRF Teleconferencing Arrangements
Scientific and Technical Advisory Cell	Police Head Quarters, Winfrith Technology Park - DT2 8DZ	Dorset Fire and Rescue Head Quarters, Poundbury- DT1 3SU	BDPLRF Teleconferencing Arrangements
Information and Communication Cell	Police Head Quarters, Winfrith Technology Park - DT2 8DZ	Dorset Fire and Rescue Head Quarters, Poundbury - DT1 3SU	Dorset Communicators Group Teleconferencing Capability
Potassium Iodate Tablets Distribution Coordination Centre	Britannia Terminal – Portland Port	Easton Health Centre	
Operational Command Centre	Portland Port Limited, Castletown DT5 1PP		

2.22 Nuclear Emergency Monitoring Support Organisation

This is a pre-planned organisation consisting of the personnel and assets described below:

- a) Mobile Monitoring vehicle operated by a driver and health physics monitor.
- b) Mobile Emergency Monitoring Headquarters Vehicle operated by a Monitoring Controller.
- c) Automatic radiation monitoring equipment to continuously monitor the submarine.
- d) A courier vehicle for the collection of samples.
- e) A Radiation Protection Specialist.

The main tasks that this organisation carries out are:

- a) Radiological surveys around the accident submarine.
- b) Coordination of monitoring assets.
- c) Collection and dissemination of monitoring data.
- d) Analysis of samples.
- e) Assessment of radiological conditions and provision of advice on countermeasures.

The organisation will be supplemented by other monitoring assets and personnel following the declaration of an accident as below.

As additional resources DFRS have Electronic Personal Dosimeters (EPD's) on every front line appliance. Every Hazardous Materials and Environmental Protection Officers (HMEPO) also carry one each.

All HMEPO's carry the Rados 200 Survey Meter for initial monitoring and assessment of the radiation risk.

There is one Incident Response Unit (IRU) for Mass decontamination of people available, located in Dorset. This can decontaminate up to 300 people per hour.

Further National Resilience Capabilities are available through Fire Control and consist of Mass Decontamination, Detection Identification and Monitoring, and Decontamination of Body Bags. These are located nationally and are requested through DFRS Fire Control to the Fire and Rescue Service National Coordination Centre (FRSNCC) and are as follows:

Mass Decontamination:

There are Incident Response Units spread operational across England and Wales carrying a range of equipment including decontamination structures capable of providing public mass decontamination. One is located in Dorset Fire and Rescue service.

Detection, Identification and Monitoring (DIM):

There are DIM vehicles each with a team of up to 12 fully trained and qualified operators (DIM Advisor) strategically located within FRS's across England and Wales. DIM vehicles carry a range of DIM equipment available 24/7 which will be deployed with the initial aim of delivering a substance detection, analysis and identification capability. DFRS does not have this capability, the nearest ones being in Hampshire FRS and Avon FRS.

Decontamination of Body Bags:

Currently an interim capability is in place to provide decontamination of body bags to support the police CBRN(E) Disaster Victim Identification process.

- 2.23 Radiation Data Management Cell. The Radiation Data Management Cell (at Strategic) is constituted from MoD Radiation Protection Specialists and will form at the Strategic Level. The Radiation Data Management Cell assesses and interprets monitoring information and co-ordinates the supply of monitoring information to all NERO cells via NERIMS (the MoD's computerised Nuclear Emergency Response Information Monitoring System), and communicates monitoring priorities to the Monitoring Controller in the EMHQ. The Radiation Data Management Cell also liaises with 42 Engineer Regiment (Geo) to allow the production of mapping products throughout each phase of the response.

COMMUNICATIONS AND ALERTING PROCEDURES

2.24 Declaration of a Radiation Emergency and MoD Alerting

It is a responsibility of The Commanding Officer (CO) of the visiting submarine to initially declare a Reactor Safety Alert or an Off-Site Nuclear Emergency at which point all the emergency plans will be put into operation. These initial alerts will be followed up with additional information including updates where appropriate.

2.25 The NERO State of Readiness

The local MOD NERO will be at an "alert" state of readiness throughout the visit; from arrival of the NPV at Pilot Station (in bound) until disembarkation of the Pilot (outbound) on departure. The response times for the various elements of the organisation at the Alert State are as follows:

Harbour Control - Immediate (manned at all times)

MoD's On-Site representative - Immediate (Within Port Area & contactable by Mobile Phone/ Radio Pager).

Emergency Monitoring Resources – at 30 minutes notice to respond to duty stations at all times.

Incident Officer's Cell Personnel - at 30 minutes notice.

Tactical Command Cell Personnel - at 1 hours notice.

Strategic Command Cell Personnel – opened up at 1 hours notice. Personnel on site between 1 and 2 hours.

Exclusion Zone Reception Centre - at 30 minutes notice.

PITs Distribution Centres - at 1 hours notice.

PITs Distribution Team – at 1 hours notice.

The staffing arrangements for the accident response cells is detailed in the Portland Port Emergency Plan for Portland Port personnel, The Portland Port Off-site Reactor Emergency Plan for Local Authority personnel and as detailed in the Site Specific Operators Emergency Plan for MoD personnel. Nominated personnel will be re-called by the Cascade Call-out system as detailed in Section 2.28. Response times are based on the reference accident. The reference accident indicates that fuel damage would only occur approximately 3 hours after the initiating event.

The out of hours and weekend arrangements are the same as above whenever the accident occurs, including response times. NERO contacts for callout cascade include out of hours details.

2.26 Communications

Before the arrival of the NPV at Portland Port, additional telephone links are facilitated at the Port to facilitate communications links between the following locations:

- Visiting Nuclear Powered Vessel
- Harbour Control Office
- Operational Command Centre (Britannia Terminal)
- Tactical Command Centre
- Nuclear Emergency Monitoring Team
- Exclusion Zone Reception Centre

These lines will be tested prior to each visit of a nuclear powered vessel to Portland.

2.27 MTPAS

The United Kingdom Public Land Mobile Network (PLMN) is susceptible to

overload during the immediate period following the onset of an emergency. If invoked, MTPAS would provide critical cellphone communication for responders with specific on-the-scene response roles during this period. Invocation of MTPAS is requested by the Strategic Co-ordinating Group if key responders are experiencing difficulties accessing the cellular network. In exceptional circumstances, the Cabinet Office may issue the request.

2.28 Cascade Alerting System

The Submarine Duty Officer will initiate the cascade callout system by contacting the following on the numbers detailed in the emergency telephone directory:

- PPL Duty Marine Officer
- HMNB Devonport EMHQ Duty Supervisor

The Portland Port Duty Officer will then alert the Maritime & Coastguard Agency and Dorset Police who will in turn alert DF&RS, Ambulance, DEFRA and the Environment Agency. Dorset Police will also alert the Duty Emergency Planning Officer, Dorset County Council who will alert West Dorset, Weymouth & Portland Council, Purbeck District Council, the Public Health England Dorset, Hants, IOW Unit and HSE ONR. (see diagram on page 60)

HMNB Devonport EMHQ Duty Supervisor when alerted, will activate the Co-Located MoD response pagers in accordance with local instructions and also recall the Nuclear Emergency Back Up Support Team (NEBUST).

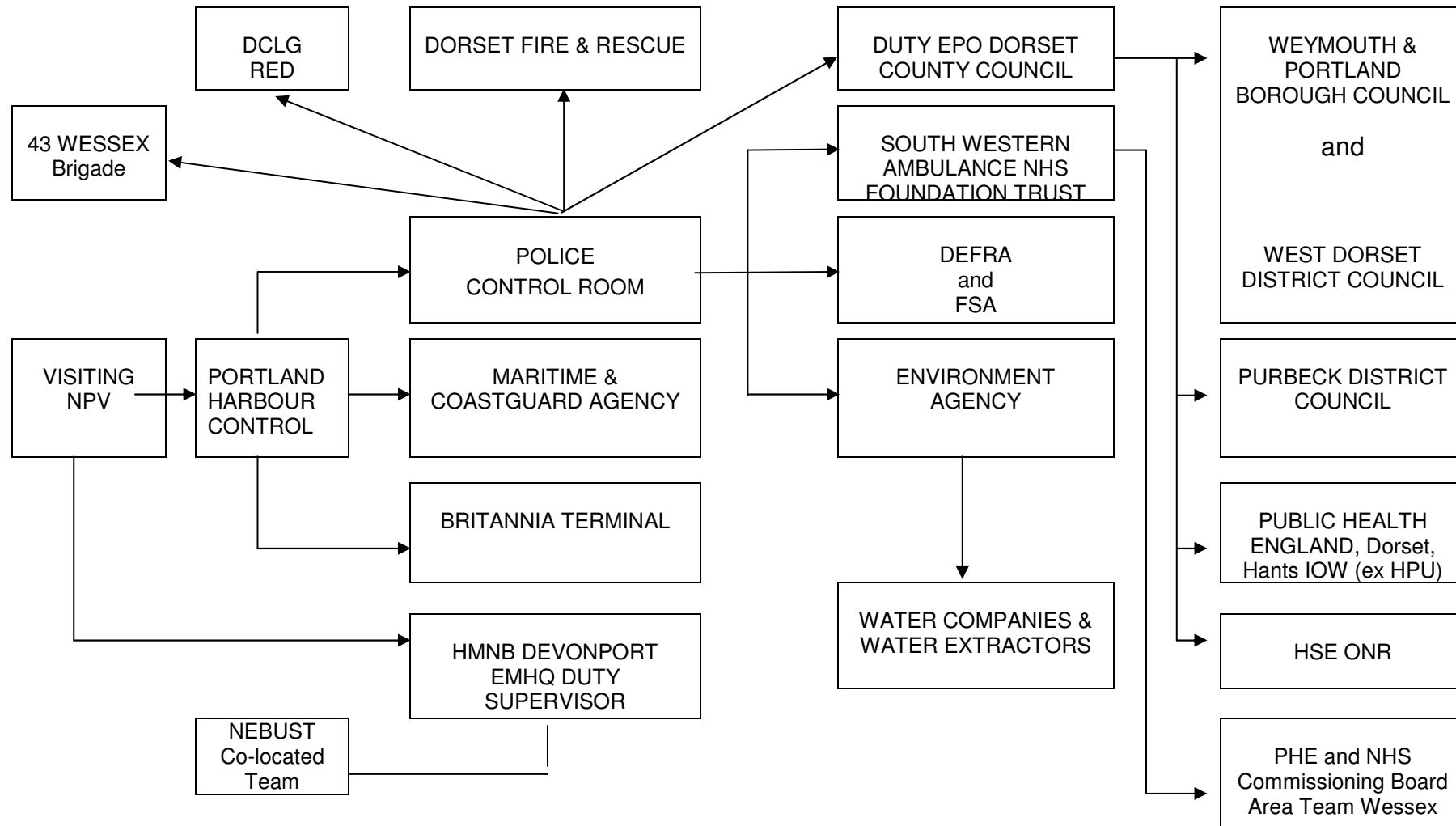
To avoid the potential for hoax calls the initiating contact (NPV to PPLL harbour control) is to be confirmed by the receiving individual returning the call (using numbers on the emergency telephone list) and confirming the identity of the caller with the submarine.

2.29 CLIO - Central Logging of Information for Incidents

CLIO is a web based information sharing and action system that has been adopted and used by the member organisations of the Bournemouth, Dorset and Poole Local Resilience Forum when responding to a multi agency incident and for exercises. Individual operations are created for each specific event and are password protected. Users also require an individual log in name and a password. The system can be accessed from any location with an internet connection. Access can be granted to appropriate users via the Programme Manager of the BDPLRF. If there are difficulties in gaining access in the absence of the above then contact the Emergency Planning Service, Dorset County Council.

In an incident, it is likely that CLIO will be activated and agencies will be informed of the name of the Operation and the password to be used. It is therefore essential that each organisation has the capability to access CLIO and that a CLIO operator is co-located with the NERIMS at any established Command Centre.

NUCLEAR EMERGENCY RESPONSE ORGANISATION (NERO) – CASCADE CALL OUT *



If needed latest contact numbers can be obtained from the Emergency Contacts Directory located at <http://www.dorsetforyou.com/media.jsp?mediaid=177304&filetype=pdf>.
If not already in possession, password to be obtained from Dorset CC EPS

SUMMARY OF RADIATION EMERGENCY ACTIONS

2.29 Actions required on receipt of an Off-Site Nuclear Emergency Alert

a) By Local Authorities.

1. The Tactical Command Centre will be activated and preparations for staffing by Local Authority Officers will be made.
2. A liaison officer from West Dorset, WDWP Council and Dorset County Council will be dispatched to the located Tactical Command Centre.
3. The Weymouth & Portland Major Incident Plan will be invoked.
4. The position of the vessel, the wind direction and the 0.5 km Automatic Countermeasure Zone will be plotted on an Ordnance Survey Map.
5. Inform the local population that a Nuclear Emergency has been declared.
6. Potassium Iodate tablets will have been pre-distributed to large institutions e.g. schools, the community hospital and the prison. For further implementation of the Potassium Iodate Tablet see the PITs Distribution Plan at Part 5.

In the event that the Public Health Director or his/her deputy is unavailable to authorise the issue of PITs, pre-scripted letters of authorisation are included in this plan at Annex 5B. *

7. Set up and open an Information Help Line and advise media of the number.

* or the equivalent post/arrangement following the restructure of the NHS

b) By MOD/ Portland Port

Detailed instructions for MoD personnel are included in “The Site Specific OEP” and for Port Authority Staff in the Portland Port Emergency Plan. The actions below summarise the key points of these documents.

1. Duty Officer, Harbour Control will alert the Maritime & Coastguard Agency and Dorset Police, who will inform other civil authorities (see page 60). Additionally he/she will inform the crews of all ships berthed within Portland Port. Inside the ACMZ, PPL will inform personnel by loud hailer of the need to evacuate.
 2. All non-essential personnel within the submarine will be evacuated to the Exclusion Zone Reception Centre. All personnel within the ACMZ will evacuate to the main muster car park outside the Britannia Terminal where they will be issued with Potassium Iodate tablets. All non-essential personnel within the ACMZ, will evacuate via the Main Gate (See Annex 2E).
 3. The MoD representative will provide details of the potential areas of hazard for shelter advice and the distribution of Potassium Iodate tablets.
 4. The Nuclear Emergency Monitoring Team (NEMT) will commence surveys in the immediate area of the potential hazard.
 5. The Incident Officer, Portland Port will consult with the Strategic Command Centre on the release of pre-scripted announcements about the emergency.
- c) Dorset Fire & Rescue Service. On receipt of an accident warning, Dorset Fire and Rescue Service will deploy to the RVP at Ferry Bridge. An Officer should report to the Operational Command Centre at the Britannia Terminal (See Part 6.4). The Chickerell Army Camp (DT3 4DF) has also been designated as a Tactical Holding area for all Agencies should this be necessary.
- d) South Western Ambulance Service NHS Foundation Trust. On receipt of an accident warning, the Ambulance Service will deploy to the RVP at Ferry Bridge. An Officer should report to the Operational Command Centre at the Britannia Terminal. South Western Ambulance Service NHS Trust will also alert the PHE Dorset, Hants, IOW unit (See Part 6.5).

- e) Dorset Police. On receipt of an accident warning Dorset Police are responsible for alerting the civil accident organisations through the cascade alerting system (See Part 6.3). In addition the Strategic Co-ordination Centre will be activated and preparations for staffing will be made to provide support to the Tactical Commanders.

2.30 Access to Portland Port

In order to cater for any initial response by the emergency services access to Portland Docks area is outlined in part 6.2. Access to the Docks will be restricted by PPL Security personnel who will ensure that only persons carrying appropriate identity cards, emergency services, invited regulatory and advisory bodies or relief personnel, as authorised by the Incident Officer, PPL, are permitted to enter.

- a) All personnel entering the port after a reactor accident will do so via the Main Gate Security. The security officer will call the Operations command centre for further instructions before allowing them to proceed on site.
- b) All personnel making such entries will be issued with Potassium Iodate tablets (PITs) at the point of entry as directed by the Incident Officer's, Portland Port, Radiation Protection Specialist.
- c) The Officer co-ordinating the Exclusion Zone Reception Centre will ensure that all persons making authorised re-entries to the ACMZ are given appropriate briefing, appropriate clothing and personal dosimetry, issued with PITs if appropriate, and administratively and radiologically controlled on entry to and exit from the area and the appropriate record maintained using the Permit to Enter system.
- d) The doses accrued by all personnel forming the accident response organisation (including the emergency services and other non-Naval personnel) are to be maintained at a level which is "As Low as Reasonably Practicable" (ALARP) and not exceeding any limits set by individual agencies.

COMMUNITY EFFECTS

2.31 Distribution of Potassium Iodate Tablets. (See Part 5)

2.32 Medical Services to the Public

It is not envisaged that any special medical arrangements will be required for the local population, other than the distribution of Potassium Iodate tablets. Ambulances and coaches may, however, be required for movement of the aged and sick.

2.33 Water Supplies

Mains water supplies are most unlikely to be affected in any way. To reassure the public, however, sampling of main service and open reservoir water supplies will be arranged as required by Wessex Water. The acceptable levels for radioactivity in public water supplies are established by the Department of the Environment, Food and Rural Affairs (DEFRA). Any restriction even under the worst circumstances envisaged is most unlikely.

2.34 Food Supplies

In the UK the Public is protected from the hazards of fission products in food by the control and disposal of the contaminated material.

Intervention levels for food are promulgated by the European Commission and are very low, being based on doses that individuals would receive if they consumed such food for a year following the accident. It is probable therefore; that in the event of a reactor accident that did release fission products, food and farm restrictions could extend to distances significantly greater than those to which emergency countermeasures have been taken. The Food Standards Agency (FSA) is responsible for assessing the risk and imposing the necessary controls.

2.35 Evacuation, Reception and Accommodation – Rest Centres

In the highly unlikely event when evacuation becomes necessary the decision to evacuate is taken by the Police Strategic Commander. All the Reception centre details are contained within the Dorset Rest and Reception Centres Plan, and the Portland Plan should be read in conjunction with this. Staffing and running details are also included in this particular plan. This Plan can be found at: <http://www.dorsetforyou.com/402361> (password to be obtained from DCC EP Service). Rest Centres close to Portland are highlighted in Annex A (part 5). Four of these Centres are included on the pre distribution list and

issued with PIT's numbers according to their capacity. These are: Royal Manor Arts College (DT5 2RB) 250 PIT's, Portland Heights Hotel (DT5 2EN) 100 PIT's, Budmouth Technology College (DT4 9SY) 400 PIT's, Wey Valley School (DT3 5AN) 750 PIT's.

2.36 Relocation is the term used to describe the movement of the public from contaminated areas to avoid long-term radiation exposure or to allow decontamination to take place. It is therefore distinct from evacuation, which is an emergency countermeasure aimed at providing immediate public protection. There are no national criteria for the implementation of relocation. Any requirements for relocation would be determined by discussion among relevant local and national agencies with the aim of optimising the protection of the public. The protection provided by adequate emergency countermeasures would allow the required time to assess the need for relocation.

2.37 Restrictions on Land Access

It may be necessary in the interests of public safety to restrict access to contaminated areas. Arrangements will be made and implemented by the Police in conjunction with PPL Security personnel as appropriate, and the Local Authority. MOD personnel will be responsible for policing the waterside area of the ACMZ.

2.38 Restrictions on Waterborne Access

The Incident Officer, PPL will assess the hazard to shipping in the Port and impose any restrictions, which may be necessary.

2.39 Training

All personnel involved in the response are trained in their respective roles within the plan. Training will be reviewed and updated on a regular basis in order for all personnel to be fully competent in their particular role.

All staff responding to an incident involving a nuclear vessel berthed at Portland Port will receive refresher training as appropriate. New staff and staff whose roles have changed will also be given appropriate instruction and training.

2.40 Exercising

The plan is constantly reviewed by the OBIG who meet annually and any changes are incorporated and reflected in training. Under the regulations the plan must be reviewed and exercised every three years but if considered necessary it may be exercised at shorter time intervals.

CLAIMS PROCEDURES AND REGISTRATION OF PERSONS AFFECTED BY OFF-SITE NUCLEAR EMERGENCY

2.41 Ministry of Defence will deal with claims under the principles for radiation injury and damage (including the sole and absolute liability of the operator) established by the Nuclear Installations Act 1965. The Ministry of Defence is prepared to consider any reasonable claim for compensation for any loss or damage, which can be shown to have been directly attributable to the incident concerned. Each claim will be considered on its merits, taking into account the full circumstances surrounding the incident. Any claim received will be dealt with as expeditiously as possible but no fixed timescale can be given in view of the wide and varied nature of any possible claim.

2.42 Procedure for claims for Injury, Damage or Loss.

Any person or organisation suffering injury, damage or loss directly attributable to a Reactor Accident will be entitled to claim compensation. The Department of Social Security (Supplementary Benefits Commission) is also empowered to make various loans to persons who find themselves in urgent financial need as a result of a major accident.

2.43 Registration of Persons affected by an off-site nuclear emergency

If radioactivity affects areas beyond the submarine it will be necessary to arrange for people in those areas to be registered so that it is possible to prove their presence in the affected areas and for health monitoring (See Part 6).

LOCAL NUCLEAR EMERGENCY RESPONSE ORGANISATION (NERO)

FUNCTIONS OF KEY LOCAL NERO PERSONNEL

1. **The Submarine Commanding Officer**: of the visiting submarine would initially declare a Reactor Safety Alert (RSA) and provide the initial alert for an Off-Site Nuclear Emergency (OSNE). He is responsible for initiating the local NERO response in the event of an incident.
2. **The Incident Officer Portland Port**: is responsible to the Tactical Commander for directing all activities within and around the docks area. Duties will include:
 - a) Establishing the scope of the accident
 - b) Minimising the consequences of the accident
 - c) Ensuring automatic countermeasures are implemented
 - d) Ensuring casualties receive medical attention
 - e) Ensuring unauthorised persons do not enter the area
 - f) Ensuring that all personnel who are authorised to enter the area are subject to full radiation protection control
 - g) Ensuring that relief's are provided for essential personnel
 - h) Authorising individual emergency radiation exposure levels (in consultation with the Radiation Protection Specialists) to port employees. Other employers/organisations must separately authorise exposures to their own staff on the day.
 - i) Ensuring that appropriate instructions and advice are issued to other vessels within the area.
3. **The Tactical Command Centre**: As members of the emergency services and other agencies arrive they will concentrate on their specific tasks within their areas of responsibility. Each agency will liaise fully and continually with others employed in the response to the accident to ensure an efficient and combined effort. The Police will act as the co-ordinator of this response, resources will be needed outside those immediately available and therefore a tactical level of command is introduced. Its prime tasks are to determine the priority in allocating resources, to plan and co-ordinate the overall response and to obtain other resources as required.
4. **The Military Co-ordinating Authority (MCA)**: The MCA is in overall command of all local MoD post-accident response and procedures. They are also the local representative of the Lead Government Department. A representative will be located at the Strategic Command Group and is responsible for liaising with the local civil authorities and providing them

with all relevant information and advice. The MCA reports to MoD HQ DNEO and is responsible for keeping them informed as the situation develops.

5. **The Strategic Command Centre:** The purpose of the strategic level of command will be to formulate the overall policy within which the response to the nuclear reactor accident will be made. In addition the strategic command will ensure that priorities for demands by the tactical command are met as well as setting out plans for a return to normality once the incident has been brought under control. The strategic command will also be aware of the wider role, which may encompass central government interests, handling requests for advice and assistance from individual services and agencies, and formulating a media strategy. The Information Communications Cell (ICC) and the Scientific & Technical Advisory Cell (STAC) will support the Strategic Command Group here at the Strategic Command Centre. The strategic response comes under the control of the Chief Constable or his representative and will be based at a designated Strategic Command Centre. The MCA together with technical and Radiological Protection Specialists will locate to the strategic level when it is established.

6. **Military Aid to the Civil Authorities (MACA)** MACA is the method by which Defence capabilities may be brought to bear in order to assist civil authorities in filling capability gaps when they are required to respond to incidents and emergencies within their areas of operations. It should be understood that the Armed Forces are funded for Defence purposes, and that the primary responsibility for dealing with civil emergencies lies with Civil Authorities.

Principles of MACA

The provision of MACA is guided by 3 criteria:

- a. Military Aid may be used after it has been determined that all other avenues of mutual aid, other agencies, and the private sector must otherwise considered as insufficient or be unsuitable.
- b. Where the Civil Authority lacks the required level of capability and it is unreasonable to expect it to develop one.
- c. Where the Civil Authority has a capability, but the need to act is urgent and there is an immediate lack of available resources.

In the event of any type of nuclear reactor accident within Portland Port, the on-site military response is the direct responsibility of the Devonport

Naval Base Commander, who as the Military Co-ordinating Authority (MCA) will attend SCG personally. Under these specific and unique circumstances any request for immediate life saving support (MACC Category A) and Defence assistance with longer term Consequence Management, would be co-ordinated in the first instance by the MCA, supported by Headquarters 43 (Wessex) Brigade through either the Joint Regional Liaison Officer (JRLO) or Royal Naval Regional Liaison Officer (RNRLO).

The MCA will be supported at SCG by Commander 43 (Wessex) Brigade or his representative, elements of his staff and the RNRLO where appropriate. Commander 43 (Wessex) Brigade's prime responsibility is to provide advice to the MCA and the chair of the SCG whilst at the same time co-ordinating any further military response in support of the incident and Consequence Management, with particular emphasis (but not exclusively) on off-site support.

AID-MEMOIRE FOR KEY PERSONNEL

**AIDE MEMOIRE FOR SUBMARINE COMMANDING OFFICER/
INCIDENT OFFICER, PORTLAND PORT LIMITED (PPL)**

INITIAL ACTIONS – Declaration of Off-Site Nuclear Emergency

1. Has the submarine released an alerting signal?
2. Has the Emergency Alert been activated?
3. Has the Cascade Callout system been activated?
4. Has the Exclusion Zone Reception Centre been prepared?
5. Has MOD been informed by telephone?
6. Has the 0.5 km ACMZ been cleared of non-essential personnel?
7. Is the Nuclear Emergency Monitoring Team (NEMT) operational?
8. Is the Incident Command Cell receiving regular briefs?
9. Is the Tactical Commander in position and fully briefed on the situation?
10. Is entry to the accident vessel possible? If so for how long?
11. Are whereabouts of Local Fire and Rescue services known?
12. Is primary/secondary containment intact?
13. What assistance is required by the accident vessel and who is arranging?
14. Is additional assistance required (medical/physical/engineering)?
15. Has contact been established with staff at EZRC?
16. Is the Operational Command Centre staffing levels correct?
17. What is the radiological situation?
18. Have essential personnel within ACMZ been accounted for?
19. Have any other vessels within Portland Port been informed?
20. Do any other vessels in the Port need more advice/help?
21. Are Potassium Iodate tablets being issued at Main Gate?
22. What protective measures are required for casualty handling teams?
23. Are casualties receiving attention?
24. Is the receiving Hospital ready to receive casualties? Dorset County Hospital and Poole Hospital have been nominated as designated hospitals.
25. Have safe routes been prioritised for casualty evacuation? Inform South Western Ambulance Service NHS Trust.
26. Have the names of casualties been ascertained?
27. Is the narrative being kept on Nuclear Emergency Response Information Management System (NERIMS)/are the stateboards up to date?

ADDITIONAL ACTIONS FOR “OSNE – RADIATION HAZARD CONFIRMED”

1. Has “Radiation Hazard Confirmed” been passed to Tactical & Strategic Command?
2. Is accident vessel being evacuated, if yes to what degree?
3. Have stay times been calculated for essential personnel at risk?
4. Are weather conditions known, has PACRAM procedures been requested?
5. Are key personnel evacuated from the NPV being retained for debriefing?
6. Should the vessel be moved or is other forms of mitigation appropriate?
7. What protective measures are required for casualty handling teams?
8. Are casualties receiving attention?
9. Have safe routes been prioritised for casualty evacuation? Inform South Western Ambulance Service NHS Trust.
10. Have the names of casualties been ascertained?

ADDITIONAL ACTIONS FOR “OSNE – RELEASE OF RADIOACTIVE MATERIAL CONFIRMED”

1. Has this information been passed to rest of response organisation?
2. Is the release contained/continuing? What is the extent of the release?
3. Does the monitoring controller have a downwind plume prediction?
4. Have stay times been calculated for essential personnel at risk?
5. Should the vessel be moved or is other forms of mitigation appropriate?
6. What protective measures are required for casualty handling teams?
7. Are casualties receiving attention?
8. Have safe routes been prioritised for casualty evacuation? Inform South Western Ambulance Service NHS Trust.
9. Have the names of casualties been ascertained?
10. Has an area been established for segregation of contaminated vehicles/equipment?

ADDITIONAL CONSIDERATIONS

1. Is public information being kept up to date?
2. Is an update required on the public information being published?
3. Has a plume prediction been provided?

AIDE MEMOIRE FOR MILITARY CO-ORDINATING AUTHORITY (MCA)

1. Has initial Off-Site Nuclear Emergency alert been sent to MoD?
2. Has MoD (CDS Duty Officer/HQ DNEO) been alerted?
3. Is monitoring taking place outside the Port area?
4. Have Local Authorities/Emergency Services been alerted?
5. Have Local Authorities been advised of recommended countermeasures to take?
6. Have the Nuclear Emergency Backup Support Team (NEBUST) been alerted?
7. Has the MCA spoken directly to the Incident Officer Portland Port?
8. Has a brief been obtained from Incident Officer Portland Port?
9. Has the MCA enough knowledge of the accident to brief MoD, L.A./Emergency Services/Media?
10. Is the weather situation known and correctly shown on stateboards?
11. Have monitoring readings been received and passed to all concerned ?
12. Has an initial press statement been made by I/C? Do MCA and MoD hold a copy?
13. Are arrangements being made to receive the press?
14. Are arrangements being made to deal with telephone enquiries? Do they know what to say?
15. Is the narrative on Nuclear Emergency Response Information Management System (NERIMS) being kept?/Are the stateboards up to date?
16. Is the MCA cell fully manned? Do the arrangements allow for a prolonged period of operation?
17. Is the MCA cell fully equipped? Is there enough phones/faxes/maps/stateboards etc?
18. Has the PACRAM procedure been asked for (via Radiation Protection Cell)?
19. Has the MCA the latest casualty information report?
20. Is there a need to activate the Government Telephone Preference

Scheme and Mobile Telephone Privileged Access Scheme (MTPAS) to guarantee communications?

21. Is a SITREP/Follow up signal being prepared for MoD?
22. Are preparations being made to receive support forces
23. Are arrangements being made for VIP visits?

ADDITIONAL ACTIONS FOR “OSNE – RADIATION HAZARD CONFIRMED”

1. Has the change in classification been cascaded through all response organisations?
2. Do all concerned have a grasp of the radiological consequences of the

- accident – does the countermeasures strategy need revising?
3. Have Local Authorities been advised of recommended countermeasures to take?
 4. Is a Notice to Airmen (NOTAM) required for Portland area?
 5. Are the Incident Officer Portland Port requests for external support being met?
 6. Is an update for the Press statement being prepared?
 7. Is a SITREP/Follow up signal being prepared for MoD?

ADDITIONAL ACTIONS FOR “OSNE – RELEASE OF RADIOACTIVE MATERIALS CONFIRMED” 2 ACCIDENT

1. Has the change in classification been cascaded through all response organisations?
2. Have monitoring readings been received and passed to all concerned
3. Do all concerned have a grasp of the radiological consequences of the accident – does the countermeasures strategy need revising?
4. Is radioactive contamination likely to spread beyond the Port area?

AIDE MEMOIRE FOR POLICE TACTICAL COMMANDER

1. Establish the current classification of the incident
2. Establish current wind direction – Met Office
3. Decide safe location for Tactical Command Centre
4. Appoint staff officer and admin support staff (inc press officer)
5. Establish what radiation monitoring is in place
6. Establish health and safety situation/review risks assessments
7. Consider sending a liaison officer to Operational Command Centre
8. Gather technical information from MoD and other sources
9. Establish what cordons are in place
10. Appoint Bronze Cordons, set safe outer cordon
11. Appoint Bronze Traffic, set diversions, access routes
12. Assess level of public information
13. Establish Media Strategy/location of Media Centre
14. Establish status of Gold Command/Major Incident mobilisation/SIO/SIM/Casualty Bureau/Coroner
15. Review public safety and warning/reception centres/documentation
16. Plot Plume/Cordons/RVP/Marshalling Area/FCP
17. Arrange a meeting of the Co-ordinating Group
18. Review communications with all control centres/key staff
19. Establish location of PPE/CBRN trained staff
20. Appoint a liaison officer to attend Local Authority Control Centre if established

ADDITIONAL ACTIONS FOR CHANGE OF CLASSIFICATION

1. Is public information being kept up to date?
2. Is an update required on the public information being published?
3. Has a plume prediction been provided?

PORTLAND PORT – NUCLEAR EMERGENCY INSTRUCTIONS

General

1. Prior to a visit of a Nuclear powered vessel to Portland it is the responsibility of the General Manager (Harbour & Facilities) to ensure all personnel within the Port PPL (employees, contractors and lodging companies) are aware of the dates of the visit and the Evacuation Plan for the Port.
2. If the evacuation order is received, all personnel are to complete all tasks appropriate to the end of the working day, e.g. Security, Safety of Buildings etc, and all personnel are to leave the ACMZ. Potassium Iodate tablets (PITS) (2 in number) will be issued together with an explanatory leaflet.
3. When a nuclear reactor accident report is received, priority will be given to the evacuation of the area within a 0.5 km radius of the Nuclear Powered Vessel. PPL Security will automatically alert personnel within the ACMZ by means of a van using a loud hailer. Barriers will be located to control access to the ACMZ. Alternatively, the use of a portable siren stationed adjacent to the submarine when at berth may also be used to allow clear and timely warning to those in the vicinity of the vessel.
4. Britannia Terminal – This building may hold up to 500 personnel who, initially, will take shelter within the centre, be issued with and take Potassium Iodate tablets. Once the Incident Officer (PPL) has assurance that the ACMZ has been evacuated of all non-essential personnel he will instruct PPL Security Personnel to undertake a controlled evacuation of the Britannia Terminal. The evacuated personnel, if needed, will be sent to a local rest centre as suggested by the Local Authority at the time of the incident.

Visiting Ships

5. In the event of a Nuclear Reactor accident, visiting ships will be alerted by Harbour Control on VHF R/T Communication Channel 74.
6. The following actions are to be taken by the Crews of Ships berthed in Portland Port :

As far as practicable shut down ventilation, hatches, scuttles and openings etc. to minimise the possible ingress of radioactive material.

EXCLUSION ZONE RECEPTION CENTRE (EZRC)

Requirement

1. The Exclusion Zone Reception (EZRC) is required to provide initial reception, medical triage and decontamination facilities for all personnel evacuated from the Exclusion Zone. At the Portland Operational Berth this Exclusion Zone is effectively the vessel itself and the number of evacuees may be up to 150 personnel.

Description

2. The EZRC is a mobile decontamination unit and will be sited adjacent to the Port Offices prior to the arrival of a NPV.

Facilities

3. The facility provides the following facilities:
 - a) Reception and 'dirty' holding area
 - b) Monitoring and Decontamination area (with shower facilities)
 - c) Storage area for decontamination equipment (to be pre-positioned)
 - d) Communications with Incident Commanders Cell.

Decontaminated evacuees will proceed to a holding area and await evacuation. One of the rest Centres as per Section 2.37, or as per the Rest Centre Plan could be used depending on the specifics of the incident.

Detailed instructions for setting up and operating the EZRC are contained in the document "The Site Specific OEP".

ADDITIONAL CREW INSTRUCTIONS IN EVENT OF NUCLEAR REACTOR EMERGENCY

References:

- A FLEET Generic Operators Emergency Plan
- B Portland Port Ltd Emergency Plan

THESE INSTRUCTIONS ARE GIVEN FOR INFORMATION ONLY. SHIP STAFF WILL CARRY OUT ACTIONS IN ACCORDANCE WITH REFERENCE A. FURTHER INFORMATION IS AVAILABLE AT REFERENCE B.

OOD/EOOD

1. Order evacuation of non-essential personnel to Exclusion Zone Reception Centre (EZRC) utilising transport provided. In the event of insufficient room on transport, evacuees remaining should begin to walk towards EZRC.
2. Inform Incident Officer Portland Port at Operational Command Centre of essential personnel remaining onboard.

EVACUEES

1. Temporary signage will direct personnel to the EZRC – Detailed instructions are: from Berth, follow the quay until the junction with the main dock road, turn right on to the main dock road. Follow the main dock road towards the port exit just before the main gate the EZRC is located in the main car park.
2. OIC should order suitable evacuee to return to ACMZ boundary to transport other evacuees as required.
3. Evacuees should proceed in to the EZRC by the designated entrance and follow any instructions given by EZRC staff.
4. Await further instruction from radiation protection personnel on their arrival at EZRC.

PART 3

INFORMATION TO THE MEDIA AND PUBLIC

	Para
<u>Provision of Information to the Media</u>	
Prior Information to the Public	3.01
Communication – Media and Public Information	3.02
How the Cell Works	3.03
Provision of Public Information	3.04
Dorset Police Casualty Bureau (DPCB)	3.05
Notification of Next of Kin	3.06
Provision of Information to the Public	3.07
Pre-prepared Initial Public Safety/Media Statements	3.08
Off-Site Nuclear Emergency at Portland Port – Pre-Prepared Media Statement	3.09
Off-Site Nuclear Emergency – Radiation Hazard Confirmed – at Portland Port – Issue of Potassium Iodate Tablets – Pre-prepared Media Statement	3.10
Off-Site Nuclear Emergency – Release of radioactive Material Confirmed at Portland Port – Pre-Scripted Media Statement	3.11

PRIOR INFORMATION TO THE PUBLIC

- 3.01 Prior information will be given to the public up to 1.5 km from the Nuclear Powered Vessels Berths. Once the information has been disseminated it will be reviewed and reissued during the period not exceeding three years. Portland Port actually disseminates this information to 2 km at least every 3 years.

PROVISION OF INFORMATION TO THE MEDIA

3.02 Communication – Media and Public Information

It is possible that news of a reactor accident may become public before the authorities make any official announcement. Interested parties need to be aware that there is the potential for a delay between the incident entering the public domain and their ability to respond. The media and public may contact the authorities before any operational response cells are running.

From a communications and information context, the priority should be to invoke the Emergency Media Action Plan for Dorset and establish an Information and Communications Cell (ICC) at the Strategic Command Centre

immediately. This would draw in the local authorities, the emergency services and the MOD and, at a later stage, other government agencies.

3.03 How the Cell Works

The Information and Communications Cell (ICC) provides the interface with the media and provides public information. It is the point of contact for all information for all agencies, and will be located with the Strategic Command Centre. It works alongside the help line service that will be set up to deal with calls from the public at the time of the emergency.

The ICC will be used by all agencies for the release of advice and information to both the public and the media regarding the incident. Specialist briefings by agencies on their own particular actions will be co-ordinated through the ICC. It is essential that agencies inform the ICC of the line they are taking before talking to the media or the public to avoid apparently conflicting information being given out.

3.04 Provision of Public Information

Enquiries from the public will be dealt with by a help line team located at West Dorset, WDWP Council which will be run in conjunction with the local health service. The contact number for this help line will be made public/broadcast at the time of the emergency and calls from the public to Portland Port should be re-routed to this number. All casualty enquiries and information will be handled by Dorset Police.

3.05 Dorset Police Casualty Bureau (DPCB)

After a reactor accident the Dorset Police Casualty Bureau will be activated and its telephone number(s) broadcast to the public.

All enquiries from the public concerning casualties will be directed to the Casualty Bureau.

All information on casualties and missing persons from within Portland Port will be passed to DPCB for collation.

3.06 Notification of Next of Kin

No information identifying casualties will be released until the next of kin have been informed.

The informing of next of kin will be carried out by military welfare organisations for those personnel in the armed forces. The notification of next of kin will be conducted in consultation with Dorset Police Casualty Bureau. Dorset Police will inform then next of kin of the general public employed in Portland Port.

3.07 Provision of Information to the Public

There is a requirement under REPIR 2001 for Local Authorities to provide information to the public in the event of a radiation emergency. Pre-scripted

initial press releases for use by the Police and the ICC during the stages of the emergency are contained in paragraphs 3.09 to 3.11.

3.08 Pre-prepared Initial Public Safety / Media Statements

Notes About Usage

These statements must only be used on the authority of the Tactical Commander and with the agreement of the NHS Commissioning Board and Local Authorities.

The Police Press Officer will release the following public information statement following the initial contact from Portland Port.

This must be authenticated to ensure its credibility.

3.09 Off-Site Nuclear Emergency at Portland Port (A hazardous condition which requires the implementation of urgent countermeasures to protect the public.).

Pre-Prepared Media Statement

Initial Statement:

An incident has occurred on board the nuclear-powered vessel HMS..... which is alongside the Deep Water Berth /Portland Bunkering International (PBI) Berth, Portland Port (delete as appropriate). No radiation hazard has spread outside the vessel.

The emergency services, the Ministry of Defence, Weymouth & Portland Borough Council and the Health Service have put their safety plan into operation. Therefore we are issuing precautionary safety instructions to members of the public living in (**define**), which includes the issue of preventative tablets known as Potassium Iodate tablets (PITs). **DO NOT TAKE THESE TABLETS UNTIL TOLD TO DO SO.**

Please read the information booklet about nuclear submarine visits that was delivered through your letterbox.

Please note that there is no danger whatsoever of a nuclear bomb type of explosion.

We are advising members of the public in the (**define**) area to:

- | | | |
|----------------|---|---|
| GO IN | - | shut the windows and doors – shut down fans, fires, ventilators or any air conditioning system drawing air from outside the building. |
| STAY IN | - | don't collect your children from school until you are asked to collect them – the school will take care of them until then. |

TUNE IN - to local radio or TV. Royal Navy/Maritime & Coastguard Agency personnel will deliver the Potassium Iodate tablets to your door. Should you have any queries regarding the issue of Potassium Iodate Tablets please ring the emergency helpline number on..... (to be issued at the time). Keep tuned in to your local radio and TV stations for any further update information.

We will issue more information, so please listen for announcements on:

TV: BBC Spotlight, BBC South Today, Meridian TV, Westcountry TV

Radio: BBC Radio Solent 103.8 FM and 96.1 FM
Wessex FM 96 and 97.2 FM
Twitter: @dorsetforyou

If you have any health worries call NHS Direct 111.

Workers and visitors not in residential accommodation in the area are advised to leave to a point beyond (define) and not to return until they are informed that it is safe to do so.

If you live outside the area (**define**) you do not need to take any special safety precautions, but we would ask you to stay indoors and keep roads clear to allow easy access for emergency vehicles.

3.10 Off-Site Nuclear Emergency – Radiation Hazard Confirmed at Portland Port
(An Off-Site Nuclear Emergency in which a radiation hazard has been detected.).

Pre-Prepared Media Statement

Initial Statement:

An incident has occurred on board the nuclear-powered vessel HMS.....
which is alongside atBerth, Portland Port.

We are advising the public living in the (**define**) area to take Potassium Iodate tablets, which should have been delivered to your door. If you have not received your tablets you should telephone the emergency help line number that has been broadcast for advice.

The emergency services, the Ministry of Defence, Weymouth & Portland Borough Council and the Health Service have put their safety plan into operation. Therefore we are issuing further safety instructions to members of the public living in (define area), which includes the issue and taking of preventative tablets known as Potassium Iodate tablets.

Please read the information booklet about nuclear submarine visits that was delivered through your letterbox.

If you do not live in the affected area, please do not try to collect tablets – you do not need them and you will hinder safety efforts if you attempt to get them.

Please note that there is no danger whatsoever of a nuclear bomb type of explosion. But there is a radiation hazard in the immediate vicinity of the vessel, although no radioactive materials have escaped into the environment.

We have evacuated non-essential persons from a zone 0.5km around the vessel.

We are also advising members of the public in the (**define**) area to:

- GO IN** - shut the windows and doors – shut down fans, fires, ventilators or any air conditioning system drawing air from outside the building.
- STAY IN** - don't collect your children from school until you are asked to collect them – the school will take care of them until then.
- TUNE IN** - to local radio or TV. Royal Navy/Maritime & Coastguard Agency personnel will deliver the Potassium Iodate tablets to your door. Should you have any queries regarding the issue of Potassium Iodate Tablets please ring the emergency helpline number on..... (to be issued at the time). Keep tuned in to your local radio and TV stations for any further update information.

We will issue more information, so please listen for announcements on:

TV: BBC Spotlight, BBC South Today, Meridian TV, Westcountry TV

Radio: BBC Radio Solent 103.8 FM and 96.1 FM
Wessex FM 96 and 97.2 FM
Twitter: @dorsetforyou

If you have any health worries call NHS Direct 111.

Workers and visitors not in residential accommodation in the area are advised to leave to a point beyond (define) and not to return until they are informed that it is safe to do so.

If you live outside the area (**define**) you do not need to take any special safety precautions, but we would ask you to stay indoors and keep roads clear to allow easy access for emergency vehicles.

3.11 Off-Site Nuclear Emergency – Release of Radioactive Material Confirmed at Portland Port (an Off-Site Nuclear Emergency in which a release of radioactive material to the environment has been detected.).

Pre-Prepared Media Statement

This text assumes that an earlier statement has been issued. If this has not happened, then modifications incorporating appropriate text from the earlier statements will be necessary.

The emergency services and the Ministry of Defence are still dealing with an accident on board the vessel HMS, at Portland Port. Despite efforts to contain the radiation, some radioactive materials have now been released from the vessel into the environment. Personnel and equipment to monitor the radiation have been in place since the beginning of the incident and are now establishing the extent of the release of radioactive materials.

Please note that there is no danger whatsoever of a nuclear bomb type of explosion.

We have evacuated non-essential persons from a zone 0.5km around the vessel.

The emergency services, the Ministry of Defence, Weymouth & Portland Borough Council and the Health Service have put their safety plan into operation. Therefore we are also issuing further safety instructions to members of the public living in (**define**), which includes the issue and taking of preventative tablets known as Potassium Iodate tablets. If you have not received your tablets you should telephone the emergency help line number that has been broadcast for advice.

We are also advising members of the public in the (**define**) area to:

- GO IN** - shut the windows and doors – shut down fans, fires, ventilators or any air conditioning system drawing air from outside the building.
- STAY IN** - don't collect your children from school until you are asked to collect them – the school will take care of them until then.
- TUNE IN** - to local radio or TV. Royal Navy/Maritime & Coastguard Agency personnel will deliver the Potassium Iodate tablets to your door. Should you have any queries regarding the issue of Potassium Iodate Tablets please ring the emergency helpline number on..... (to be issued at the time). Keep tuned in to your local radio and TV stations for any further update information.

We will issue more information, so please listen for announcements on:

TV: BBC Spotlight, BBC South Today, Meridian TV, Westcountry TV

Radio: BBC Radio Solent 103.8 FM and 96.1 FM
Wessex FM 96 and 97.2 FM
Twitter: @dorsetforyou

If you have any health worries call NHS Direct on 0845 4647.

Workers and visitors not in residential accommodation in the area are advised to leave to a point beyond (define) and not to return until they are informed that it is safe to do so.

If you live outside the area (**define**) you do not need to take any special safety precautions, but we would ask you to stay indoors and keep roads clear to allow easy access for emergency vehicles.

- 3.12 In an emergency requiring intervention and implementation of countermeasures beyond the DEPZ (extendibility) the media statements and advice will be broadcast via the same local media channels (TV, radio, twitter) as for the DEPZ.

PART 4

RADIATION PROTECTION AND THE SCIENTIFIC AND TECHNICAL ADVISORY CELL (STAC)

	Para
Monitoring Information	4.01
Radiation Protection Specialists	4.02
Monitoring at Operational Level (Bronze)	4.03
Radiation Protection Specialists to the Incident Officer (Portland Port)	4.04
Strategic Level – The Science & Technical Advisory Cell (STAC)	4.05
Duties of the Radiation Protection Specialists to the MCA at Strategic	4.06
Roles of Environmental Services and Consumer Protection	4.07
Roles of Food Standards Agency	4.08
Roles of Public Health England - Radiation Protection Division	4.09
Roles of Wessex Water	4.10
Roles of the Environment Agency	4.11

RADIATION PROTECTION AND MONITORING ORGANISATION

4.01 Monitoring Information

The immediate radiation protection advice and monitoring support is based on resources from within Dorset. Additional resources from the Ministry of Defence and other organisations and companies will become available during the hours following the accidents.

4.02 Radiation Protection Specialists

Radiation Protection Specialist to the Incident Officer, PPL and the Naval Co-ordinating Authority are provided by MoD. The key objective for the Specialist is to provide radiation protection advice to protect workers and the public. The Specialists provide advice regarding the optimum response, taking into account the particular circumstances of the accident, to minimise the hazards.

4.03. Monitoring at Operational Level (Bronze)

The local radiation monitoring arrangements are described at section 2.22.

4.04 Radiation Protection Specialist to the Incident Officer, PPL.

The main priorities are to:

- a) Ensure there are suitable arrangements and controls in place to protect all personnel working or requiring access to the ACMZ. This will include emergency services personnel.
- b) Consider the adequacy of the existing countermeasures.
- c) Identify any groups not taking countermeasures and advise on their protection.
- d) Review the operation of the Exclusion Zone Reception Centre and provide advice to medical staff in relation to the personal contamination levels and radiation doses. Ensure the arrangements for the collection of accident dosimeters and make arrangements for forwarding these for assessment.
- e) Assess radiation monitoring requirements and co-ordinate these with operational and strategic levels and raise any conflicts with the Incident Commander, PPL.
- f) Ensure that information and assessments are recorded and forwarded in accordance with management requirements.
- g) Provide radiation protection advice for any re-entry teams to the ACMZ in accordance with the Permit to Enter system.

4.05 Strategic Level (Gold)

a) The Science & Technical Advisory Cell (STAC)

The function of the Scientific & Technical Advisory Cell is to ensure that appropriate advice is given to the Strategic Commander on the health related implications of the incident. The STAC Chair, usually the Director of Public Health, will be responsible for ensuring the expert members of the STAC provide appropriate advice to the Strategic Commander.

b) Core Members of the Scientific & Technical Advisory Cell (STAC)

- Director of Public Health – to chair the STAC
- Assistant to the Director of Public Health.
- Consultant Physician in Health Protection (Public Health England Dorset, Hants, IOW)
- South Western Ambulance Foundation NHS Trust
- Dorset Fire & Rescue Service
- MoD Radiation Protection Specialists
- Environmental Services and Consumer Protection (Dorset County Council)
- Environmental Health Officer (WDWP)
- Food Standards Agency (FSA)
- Public Health England Dorset, Hants, IOW - Radiation Protection Division
- DEFRA
- Wessex Water
- Environment Agency

c) Roles of the Scientific & Technical Advisory Cell (STAC) Members

- To assess the medium to long-term consequences of the radiation exposure.
- To advise the Strategic Commander on the health related implications of the incident, including monitoring and establishing a Registration scheme post incident for those who were in the area at the time of the incident in line with JSP 471 and the Recovery Plan (see also Remediation section).
- To advise the Strategic Commander on evacuation and containment.

- To approve with the Strategic Commander the advice given to the public on health related aspects of the incident.
- To keep a written record of decisions made and the reasons for those decisions.
- To liaise with the Department of Health through the NHS Commissioning Board South
- To provide Health personnel to participate in press conferences and briefings as members of the STAC.

4.06 Duties of the Radiation Protection Specialist to the MCA at Strategic (Gold) level include:

- To be a member of the Scientific & Technical Advisory Cell (STAC)
- Advising on the magnitude and the extent of the hazards to the general public and any countermeasures necessary.
- Liaison with medical staff concerning personnel contamination levels and radiation doses and provision of radiation protection support to the treatment of casualties off-site.

4.07 Roles of Environmental Services and Consumer Protection

DEFRA might seek assistance from specifically designated local authority officials to act as investigation officers to assist DEFRA with the collection of milk samples from farms in the affected area. Sampling is not necessary for some hours after the start of the emergency, but the times of milking and collection are important. Samples are to be one litre and each container is to carry the following information:

- Farmer's name.
- Farm address and telephone number.
- Date and time of milking.
- Date and time of collection.

4.08 Roles of Food Standard Agency

- To advise on risks to health from the food supply, short and long term.
- To advise on precautions and bans on fresh food movement, harvesting and dispersal and sale.
- To participate in press conferences and briefings as required..
- To liaise with and advise other health professionals and national experts.

4.09 Roles of Public Health England - Radiation Protection Division

- To advise on the risks and effects of radiation and related emissions on health.
- To give radiological advice.
- To advise with others on evacuation, sheltering and administration of PITs.
- To participate in press conferences and briefings as appropriate.
- To liaise with and advise other health professionals and national experts.
- To advise on recovery measures.

4.10 Roles of Wessex Water

- To advise on the quality of drinking water.
- To advise on precautions to be taken with the drinking water.
- To advise on the contingency plans that Wessex Water have to provide safe quality drinking water.
- To advise on contingency plans that Wessex Water has to assist the region.
- To participate in press conference/briefings as required.
- To liaise/advise with other health professionals/national expertise.

4.11 Roles of the Environment Agency

- Assist with the risk assessment, helping to identify where material might disperse to the environmental pathways, who might be at risk and, where practicable, give advice about the location of decontamination facilities.
- In cases where flushed materials and contaminated waters cannot reasonably be contained and stored, identify the watercourses and drainage systems at risk and warn sewerage undertakers, water abstractors and relevant local authorities.
- Help the police and other services to identify storage, transport and disposal facilities and contractors.

- Make staff available at command centres or decontamination sites to assist the continuing hazard and risk assessments.
- Help identify facilities and contractors for the storage, transport and disposal of contaminated waters or bagged solid waste materials.
- Where appropriate, investigate breaches of environmental regulation and report these for consideration of prosecution.
- Support the emergency services, local and water authorities and the Food Standards Agency in dealing with all environmental issues.
- To advise on the contingency plans that the Environment Agency has to assist the region.
- To participate in press conferences and briefings as required.
- To liaise with and advise health professionals and national experts.
- To assist with the implementation of the Recovery/Remediation and LRF Site Clearance Plan

PART 5

POTASSIUM IODATE TABLET DISTRIBUTION PLAN

	Para
Introduction	5.1
Potassium Iodate Tablets (PITs) Distribution Policy:	5.2
General	5.2.1
Schools	5.2.2
Notification	5.2.3
Deployment and Response	5.2.4
Roles and Responsibilities in delivering PITs:	5.3
PITs Distribution Team Leader (PITs DTL)	5.3.1
PITs Distribution Team (PITs DT)	5.3.2
PITs Distribution Team Co-ordinator (PITs DTC)	5.3.3
Training	5.4
Pre-visit Arrangements	5.5
Arrangements during Visit	5.6
Pre-distribution of PITs	5.7
PITs Distribution Route Documentation	5.8
PITs Co-ordinating Centres	5.9
Actions on Declaration of an Off-Site Nuclear Emergency	5.10
PITs Distribution Team	5.11
Actions on “Release of Radioactive Material Confirmed”	5.12
Recovery/Redeployment of PITs Teams	5.13

ANNEXES

- A. Pre- distributed PITs sites
- B. PITs letter of authorisation
- C. Distribution Route Map
- D. Distribution Route Matrix
- E. PITs Team Personal Safety Packs
- F. PITs Distribution Route Pack
- G. PITs Leaflet
- H. PITs Distribution Process for use at Tactical Command

5.1 INTRODUCTION

The issue of Potassium Iodate Tablets (PITs) is considered an important countermeasure. Arrangements have been agreed in advance to ensure that in the unlikely event of an accident occurring to the nuclear reactor aboard a visiting Nuclear Powered Vessel (NPV) to Portland, actions will be undertaken to ensure that effective distribution is carried out at an early stage. This section outlines the arrangements for the distribution of PITs to residents and workers situated downwind of the accident within a 30° sector, extended to 45° to accommodate potential varying wind conditions, to a distance of the 1.5km Detailed Emergency Planning Zone (DEPZ).

5.2 POTASSIUM IODATE TABLET DISTRIBUTION POLICY

5.2.1 General

The decision to issue PITs and for identifying the relevant sectors will be taken at Tactical Command in liaison with the Director of Public Health and then cascaded to Operational Command to implement. The policy for issuing and taking of Potassium Iodate tablets is set out below summarising when individuals in each zone will be issued with and take this medication.

a. **Exclusion Zone** (The Nuclear Powered Vessel)

At declaration of an Off-Site Nuclear Emergency (OSNE) all non-essential persons on the submarine will be evacuated to the Exclusion Zone Reception Centre (EZRC) and are to be issued with PITs and will take them immediately.

b. **Automatic Countermeasure Zone** (ACMZ) – 0.5 km radius

At OSNE the ACMZ will be evacuated of all personnel via Portland Port Ltd (PPL) Main Gate. All those evacuated will be issued with PITs at the Main Gate and will take them immediately. The control and audit capability will be the responsibility of the MoD Navy in liaison with PPL staff.

c. **Detailed Emergency Planning Zone** (DEPZ) – 1.5 km radius

At OSNE, transient public ie shoppers, workers or visitors downwind of the nuclear emergency will be evacuated away from the area to a safe location by the Police, from where they will be permitted to disperse. A risk assessment will be carried by the Police Tactical Commander to ensure that wherever possible police officers are not placed in a situation where they will receive additional levels of radiation (see Dorset Police's responsibilities in 6.3.5).

Residents within the affected area will be advised to go to shelter, stay in and listen to the radio for further instructions. PITs will be distributed

by a Naval and Maritime & Coastguard PITs distribution team (PITs DT); the public will only be advised to take the tablets if the situation escalates to an Off-Site Nuclear Emergency – Radiation Hazard Confirmed.

Those within pre-distribution sites will be allocated this medication by their site co-ordinators. See list of pre-distributed sites at Annex A.

If the incident progresses directly to an Off-Site Nuclear Emergency – Radiation Hazard Confirmed the procedure will be the same for an OSNE but in addition the public will be advised to take the PITs immediately. On completion of the PITs distribution in the downwind sector(s) an assessment will be made as to whether there is a need to commence distribution to additional sectors in the DEPZ.

At Off-Site Nuclear Emergency – Release of Radioactive Material Confirmed the procedure is the same as above – to issue and take PITs in the downwind sector first, with the extension of issuing and taking PITs to the whole of the DEPZ if deemed necessary.

5.2.2 POTASSIUM IODATE TABLET DISTRIBUTION POLICY - SCHOOLS

Schools within the DEPZ are identified as pre-distribution sites see Annex A.

Dorset County Council Emergency Planning Service will alert schools to a nuclear emergency and parents/guardians will be advised not to collect their children from school at any OSNE classification. The children will shelter at their schools during the OSNE. Teachers will be advised regarding the issue of Potassium Iodate tablets and the Director of Public Health will give authorisation for issue of tablets to pupils and staff.

5.2.3 NOTIFICATION

The authority to issue PITs to the public in the event of a radiation accident rests with the Director of Public Health and the NHS Commissioning Board Area Team Wessex.

In the event of an accident, South Western Ambulance Control will notify the Commissioning Board Area Team Wessex on call Director. During working hours the Duty Director will contact the Director of Public Health. Out of hours the Duty Director will contact the on-call Public Health England Dorset, Hants, IOW unit.

5.2.4 DEPLOYMENT AND RESPONSE

The Consultant and Communicable Diseases Control (CCDC) for PHE Health Protection will attend the Tactical Command Centre and may request representatives of the NHS Commissioning Board Area Team Wessex to attend the Tactical Command Centre.

The Public Health Director (or their Deputy) will authorise the distribution and taking of Potassium Iodate tablets. The CCDC may authorise their distribution

using the pre-authorisation letter if unable to gain contact (see Annex B).

Information regarding the issue and taking of Potassium Iodate tablets will be broadcast on local radio and TV once notified by the Tactical Command Centre.

5.3 ROLES AND RESPONSIBILITIES IN DELIVERING PITs

5.3.1 PITs DISTRIBUTION TEAM LEADER (DTL)

A PITs DTL will be nominated by the Royal Navy (RN) prior to a Nuclear Powered Vessel (NPV) visit to Portland and will be responsible to Devonport Naval Base Commander's On-Site representative (Radiation Protection Specialist) for:

- a. Co-ordination and administration of the PITs DT prior to and throughout the duration of a visit;
- b. Co-ordination of transport and communications throughout the duration of the visit;

5.3.2 PITs DISTRIBUTION TEAM (DT)

The PITs Distribution team will be formed of up to 7 RN personnel from the visiting NPV and up to 7 MCA personnel. In the event of an OSNE the PITs DT will deliver Potassium Iodate tablets door to door within the designated area, with the exception of specific locations which have been identified as a pre-allocated sites. Detailed arrangements to ensure that this function is carried out is contained in paras 5.10 and 5.11. If needed, distribution routes D and H (see page 104) could be covered by the same team. These arrangements will allow distribution by using only one MoD minibus.

5.3.3 PITs DISTRIBUTION TEAM CO-ORDINATOR (DTC)

The PITs DTC will be located at the Tactical Command Centre (TCC) and is responsible to the Incident Commanders (IC) Radiation protection Specialist for the command and control of the PITs distribution team when deployed on the ground.

The role of the PITs Co-ordinator will be to:

- a. Co-ordinate the distribution throughout the pre-planned countermeasure zones as decided at the time
- b. Provide a central record of all PITs deliveries.
- c. Collate queries from addresses where distribution of PITs has been unsuccessful and co-ordinate the delivery to these addresses via each PITs Co-ordination Centre (see para 5.9).

5.4 TRAINING

All personnel involved in PITs distribution will receive training from the co-located Radiation Protection Specialist to ensure they are fully competent to perform their role and understand the potential radiological and non-radiological hazards.

5.5 PRE-VISIT ARRANGEMENTS

Prior to the arrival of the NPV to Portland Port, the Radiation Protection Specialist will deliver the PITs distribution packs pre-packed in accordance with ANNEXES E and F, to the EZRC.

PITS DTL is to stand up the Naval and Maritime & Coastguard Agency PITs DT and ensure the following:

- a) the PITs distribution packs have been placed in the Britannia Terminal PIT's distribution room, and that the contents are checked in accordance with ANNEXES E and F;
- b) the PITs DT team are given a radiological protection brief from the co-located Radiation Protection Specialist;
- c) the PITs DT are given suitable distribution route familiarisation and training;
- d) the re-call arrangements and communications are checked prior to the team being stood down to the appropriate NERO readiness state;
- e) Radiation Protection Specialist is given a list of all team members and their contact details;
- f) Transport (1 x 15 Seat Mini-bus provided by MoD) will be located at the EZRC.

The PITs DTL to confirm with Radiation Protection Specialist the status of the PITs DT 12 hours prior to the arrival of the NPV.

5.6 ARRANGEMENTS DURING THE VISIT

The PITs DT will be located in the Portland area and will be at the appropriate NERO state of readiness throughout the visit.

The PITs DT will be required throughout the visit of the NPV and will be stood down on the authority of the Radiation Protection Specialist.

The PITs DTL is to ensure that the PITs DT is mustered daily at the EZRC.

The PITs DTL is to carry out the requirements of Para 5.3 daily including Portland Port Off-site Reactor Emergency and radiological protection training if required.

5.7 PRE-DISTRIBUTION OF PITs

DCC and W&PBC have identified within the Plan a number of residential properties and vulnerable groups within the DEPZ. These properties/groups will hold supplies of PITs and have been identified on all distribution route guides for information only.

5.8 PITs DISTRIBUTION ROUTE DOCUMENTATION

In recognition of the geographic location of the berth in relationship to the population located within the DEPZ, the PITs distribution plan has been arranged into 24 zones. These zones have been broken down into 8 manageable distribution routes (see Annex C).

The distribution route documentation has been developed to ensure a successful distribution of PITs in a reasonable time scale. They include the location and identification of all properties to be delivered to and those which have been pre-distributed. Examples of these documents are at Annexes C & D. Full PIT's distribution documentation is not provided with this plan, but available to those involved in the PITs distribution process. The DCC/WDWP Emergency Planning Officer are to allow frequent review and to manage the detailed PITs distribution route documentation separately as a live document.

5.9 PITs CO-ORDINATING CENTRES (PCC)

PITs Co-ordinating Centres (PCC) to cover the PITs distribution routes have been identified and are located in:

- a) Portland Port - Britannia Terminal
- b) Easton Health Centre - Portland

The PCC has 3 functions:

- a) A co-ordination centre for the PITs DTL whilst the PITs DTs are on the ground;
- b) A shelter station for the PIT DTs on Release of radioactive material being confirmed;
- c) An emergency rendezvous point for the PITs DTs.

The PITs DTL will take with him / her an additional 1000 PITs and explanatory medication leaflets to the PCC. This will enable the PITs DTL to deliver to properties missed by the PITs DT.

5.10 ACTIONS ON DECLARATION OF AN OFF-SITE NUCLEAR EMERGENCY

Alerting and Rendezvous Point – On receipt of a recall message the Radiation Protection Specialist will inform the PITs DTL who will alert members of the PITs DT who will immediately report to the Britannia Terminal for a briefing by the PITs DTL.

Distribution Route Allocation – The Radiation Protection Specialist to the Incident Officer (IO) is to confirm with the PITs DTL the initial distribution route area.

The PITs DTL is to allocate at least 2 persons to each distribution route, recording their names and call signs/telephone numbers on the Team Leader Check Off List and then issuing the correct distribution route pack.

The PITs team members are to pick up a personal safety pack.

Once the first team is ready (including team leader), the PITs DTL will give a final safety brief which is to include the following:

- a) Communications checks between the Radiation Protection Specialist and the PITs Distribution Leader, the PITs Distribution Team Leader and PITs Team Members and between the PITs Distribution Team Leader and the PITs Distribution Team Co-ordinator.
- b) Entering the call signs/telephone numbers on distribution route guides;
- c) A Personal Protective Equipment /Respiratory Protection Equipment check;
- d) Instructing team members to take their personal PITs;

The PITs DTL is to provide a copy of the names, call signs/telephone numbers and allocated distribution routes to the Radiation Protection Specialist and confirm that he is authorised to deploy his team.

Once closed up, the PITs DTC will confirm with the Radiation Protection Specialist the deployment and details of the PITs DT and assume command and control of the teams on the ground.

5.11 PITs DISTRIBUTION TEAM

The PITs DTL is responsible for ensuring that all PITs DTs are dropped off at their designated drop-off points. When the last team has been dropped off, the PITs DTL is to inform the Radiation Protection Specialist to the IO.

Once on the ground the PITs DT are to deliver their PITs as quickly as possible to the properties on their allocated distribution route.

PITs (strip of 10) and an explanatory leaflet (see Annex G) are to be delivered through the letterbox of all properties identified on the allocated distribution route matrix and recorded.

An audible alarm (door bell/knocker) is to be used at each property to alert the household; however, it is not the distribution teams task to explain what is happening.

If confronted the teams are to advise people to stay in doors switch on their television and/or radio and listen to the advice being broadcast. If they are being overwhelmed then they are to immediately contact the PITs DTL who will contact the DTC who will alert the police.

All questions on Potassium Iodate Tablet health issues are to be directed to the NHS Direct helpline on 0845 4647.

PITs DTs that find properties not identified on their distribution route matrix, are to deliver PITs to them and record the details on the sheet provided (check not pre-distributed). Each distribution route pack has been allocated 10% above its requirement of PITs for this purpose.

If there is evidence of unattended children or those with disabilities who are unable to fend for themselves, the location is to be reported to the PITs DTL who will notify the PITs DTC who will alert the police.

On completion of the distribution route each PITs DT are to contact the PITs DTL and confirm completion prior to proceeding to their pre-arranged rendezvous.

5.12 ACTIONS ON DECLARATION OF AN OFF-SITE NUCLEAR EMERGENCY – RELEASE OF RADIOACTIVE MATERIAL CONFIRMED

On declaration of OSNE – Release of Radioactive Material Confirmed, distribution teams are to don respiratory protection (to FFP3 specification) and proceed to carry on and complete the distribution unless advised otherwise by the Radiation Protection Specialist.

5.13 RECOVERY/REDEPLOYMENT OF PITs TEAMS

On completion of PITs distribution to an area and recovery of all PITs DT members, the PITs DTL is to notify the PITs DTC of the DT status. The PITs DTC will then discuss with the IC Radiation Protection Specialist the recovery/redeployment of the PITs team, including the potential requirements for de-contamination.

PRE-DISTRIBUTED PITs SITES

ADDRESS	PITs	Co-ordinator	Deputy
3 The Verne and 4 The Verne (within prison compound, at the top) Received: Date	30	Restricted contact information available to PIT's DT's only	Restricted Contact Information
Aqua Hotel Castletown, Portland Dorset, DT5 1BD Received: Date	150		
Beach House Hotel, 51 Chiswell, DT5 1AW (vacant - up for sale) Received: Date	100		
Brackenbury Infants School Three Yards Close Fortuneswell, Portland Dorset, DT5 1JN Received: Date	150		
Easton Health Centre Park Estate Road Portland, Dorset DT5 2BJ Received: Date	15000		
Fairfield Day Centre (MWTF) 0900-1630 Fairfield Day Centre East Street Portland Dorset DT5 1NF Received: Date	100		
Foyle Bank Sheltered Housing Foylebank Court, Foyle Bank Way, Castletown, Portland, Dorset DT5 1BA Received: Date	150		
Gatehouse Surgery (Private) Gatehouse Surgery Castle Road Portland, Dorset, DT5 1AU Mon-Fri 0800-2000 Received: Date	100		

PRE-DISTRIBUTED PITs SITES (continued)

Grove Infants School The Grove, Portland, Dorset, DT5 1DB Received: Date	150	Restricted contact information available to PIT's DT's only	Restricted Contact Information
HM Young Offenders Institute 104 The Grove Easton, Portland Dorset, DT5 1DL Received: Date	1500		
Osprey Leisure Centre DT5 1BD Received: Date	200		
Outlooks Childrens Nursery Castle Rd, Portland, DT5 1AU Received: Date	100		
Portland Hospital Castle Road, DT5 1AX Received: Date	200		
Royal Breakwater Hotel Castletown, DT5 1BD Received: Date	200		
The Bunker, Victoria Square (Dive Hostel) (11) Received: Date	100		
The Governors House (within prison compound, at the top) Received: Date			
The Verne Prison Dorset, DT5 1EQ Received: Date	1500		
Underhill Junior School Killicks Hill, Dorset DT5 1JW Received: Date	300		
Vindelil Court 1 to 25 and Mantle Close 15 to 22 (sheltered accommodation)	150		

PRE-DISTRIBUTED PITs SITES (continued)

Weymouth and Portland Sailing Academy Osprey Quay Portland, DT5 1SA Received: Date	200	Restricted contact information available to PIT's DT's only	Restricted Contact Information
Youth Hostels – YHA, Castle Road and Boscawen House Received: Date	200		
Royal Manor Arts College Weston Road Portland Dorset DT5 2RB Also designated Rest Centre	250		
Budmouth Technology College Chickerell Road Charlestown Weymouth Dorset DT49SY Also designated Rest Centre	400		
Wey Valley School Dorchester Road Weymouth Dorset DT3 5AN Also designated Rest Centre	750		
Portland Heights Hotel Yeates Rd., DT5 2EN Received: Date Also designated Rest Centre	100		

PIT's LETTER OF AUTHORISATION

Date:

To:

Re: Portland Port Off-site Reactor Emergency Plan

The authority to issue PITs to the public in the event of a radiation accident rests with the Director of Public Health.

In discussion with PHE Dorset Hants Isle of Wight, Dorset County Council and West Dorset, Weymouth & Portland Borough Council, who have prepared the Portland Port Off-site Reactor Emergency Plan, it has been agreed that I will pre-authorise the issuing of these tablets in specific circumstances **only in the event that both I and my deputy are unavailable.**

In relation to the above plan:

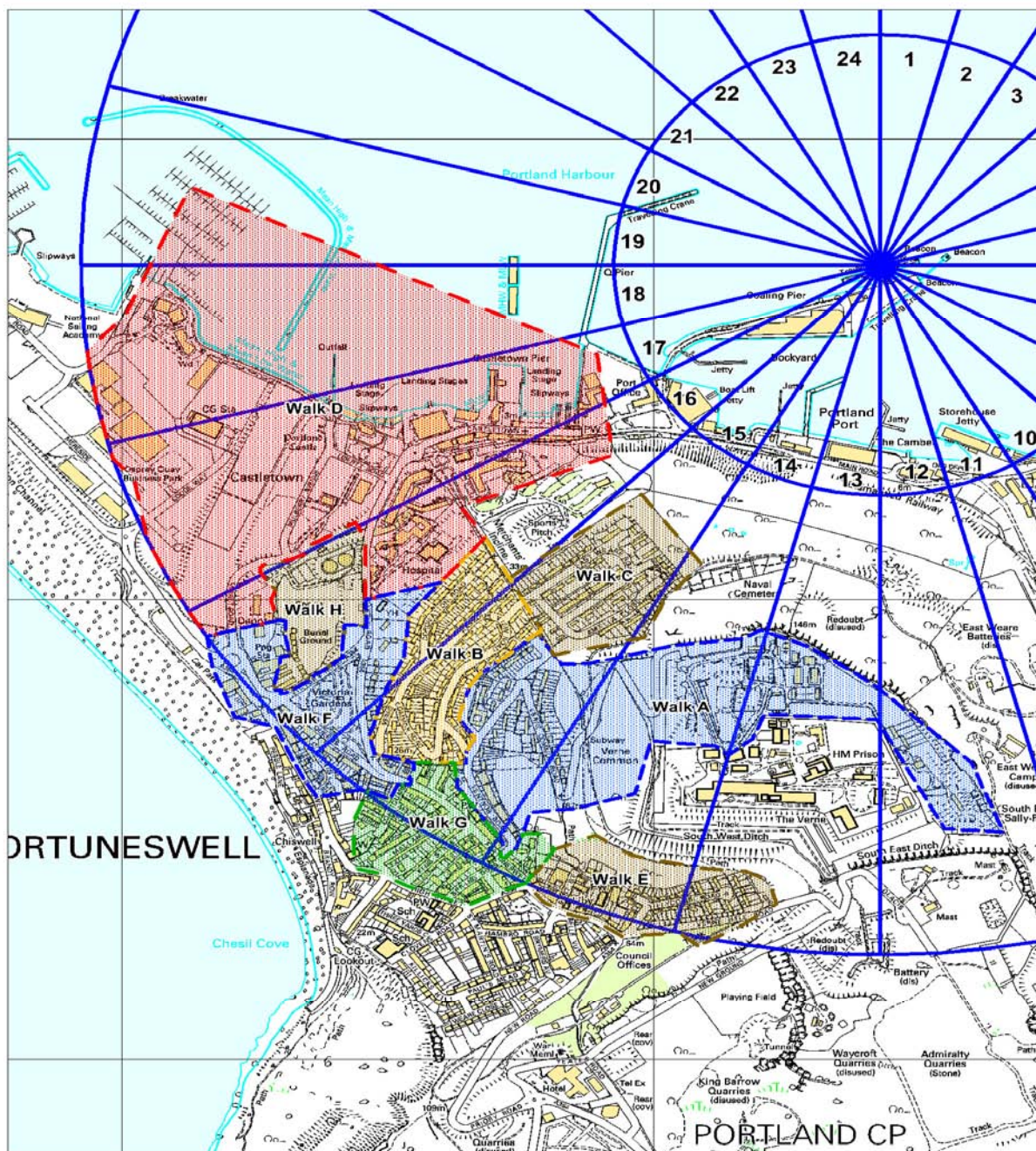
1. I hereby authorise the issuing of Potassium Iodate tablets to defined members of the public if an Off-Site Nuclear Emergency is declared.

At this stage, the public will be advised not to take the tablets but to await further instructions.

2. If an Off-Site Nuclear Emergency – Radiation Hazard Confirmed/Release of Radioactive Material Confirmed is declared, I hereby authorise the issuing of Potassium Iodate Tablets to defined members of the public for immediate consumption.

Dr.....
Director of Public Health

DISTRIBUTION ROUTE MAP

**Portland O Berth**

Walk Route Zones with 500m and 1500m sectors

THIS MAP IS NOT DEFINITIVE AND HAS NO LEGAL STATUS

Ref:

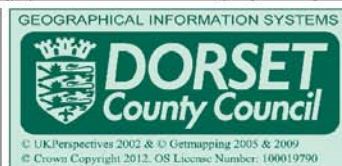
Date: 28/02/2013

Scale 1:10000

Drawn By: ACE

Cent X: 368761

Cent Y: 74035



DISTRIBUTION ROUTE MATRIX - EXAMPLE

DISTRIBUTION ROUTE MATRIX - WALK ZONE A

ALMA TERRACE															
AUGUSTA CLOSE															
AUGUSTA ROAD															
GROVE ROAD															
RUFUS WAY															

Key:

√ = Delivered by Mail Box
 X = Delivered by Neighbour (Flats/Apartments)

RED = Flats

Annex E

PITS TEAM PERSONAL SAFETY PACKS

1.	Potassium Iodate Tablets (Personal Use)	02
2.	Safety Instruction Leaflet	01
3.	Personal Respiratory Protection Mask (to be worn on OSNE – Release of Radioactive Material Confirmed declaration)	01
4.	Smock Foul Weather (High visibility strips)	
5.	Mobile phone/radio for PITs DT (Individual)	01
6.	Identification for Staff	01
7.	Dosimetry	01

Annex F

PITS DISTRIBUTION ROUTE PACK

1. Potassium Iodate Tablets (as per route)
2. Potassium Iodate Tablet Leaflets (as per route)
3. Copy of PITs Distribution Plan
4. Distribution Route Matrix
5. Distribution Route Map
6. AZ Map of Distribution Area
7. Chinagraph markers

PITs LEAFLET

**Please read this leaflet now.
Do not take the enclosed medication
until advised to do so.**

WHY HAVE I BEEN GIVEN THESE TABLETS?

There has been an incident concerning one of the Royal Navy Nuclear Submarines. It is possible that radioactive iodine may be released into the environment following this incident. This is harmful to humans and especially dangerous to young babies and children.

Each tablet contains 85mg of Potassium Iodate, which will release 50mg of non-radioactive iodine into your body. This will fill up the thyroid gland (situated in your neck) and stop the thyroid from taking up radioactive iodine, giving you protection for 24 hours.

WHEN SHOULD I TAKE THE TABLETS?

Tune in to local radio or television where further information will be available. If you need to take the tablets you will be advised through the local radio or television.

WHO SHOULD TAKE THE TABLETS?

Everyone, except those who have been told by their doctor that:

- they are sensitive to iodine, *OR*
- they suffer the very rare medical conditions of dermatitis herpetiformis or hypocomplementaemic vasculitis.

If you do not know if you have these medical conditions, then you SHOULD take the Potassium Iodate tablets. It is very important that children and women who are pregnant or breastfeeding take these tablets. This is because the fetus and young children are particularly sensitive to the effects of radioactive iodine.

HOW MANY TABLETS SHOULD I TAKE?

The enclosed strip contains ten tablets. The number each person within the house should take depends on their age as follows:

Adults (including pregnant and breast-feeding women)	2 Tablets
Children aged 3-12 years	1 Tablet
Children aged one month - 3 years	½ Tablet
Newborn babies up to one month	¼ Tablet

HOW SHOULD I TAKE THE TABLETS?

If you can, swallow the right dose for your age with water. If you or your children find it hard to swallow tablets, crush the right number of tablets and mix with a teaspoon of something like jam, honey or yoghurt. For babies who are not yet eating, crush their dose and then dissolve it in a small quantity of milk or juice, shaking well.

HOW OFTEN SHOULD I TAKE THE TABLETS?

One dose will protect you for 24 hours. Do not take more than the single dose unless you are specifically instructed to do so. In the very unlikely event of a prolonged incident, you will be given further instructions. Continue to listen to local radio and television until the incident is over.

WHAT IF THERE ARE NOT ENOUGH TABLETS FOR EVERYONE IN THE HOUSE?

Children and women who are pregnant or breast-feeding should be treated first. Then call

the Helpline telephone number which will be being broadcast by your local radio and TV stations and let them know how many more you need.

WHAT ARE THE SIDE EFFECTS?

Most people do not get any problems. Some people may feel a little sick for a while. Other, very rare problems include a rash, swollen salivary glands, headache, wheezing or coughing. If you have any health concerns about taking the tablets please call NHS Direct on 0845 4647.

WHAT IF I TAKE TOO MANY TABLETS?

If you, or anyone else, swallows a lot of the tablets at the same time then phone your doctor or nearest casualty department immediately.

SHOULD I SEE A DOCTOR AFTERWARDS?

Most people will not need to see their doctor after taking the tablets. However, if you have to see your doctor for other reasons, you should tell him/her that you have taken Potassium Iodate.

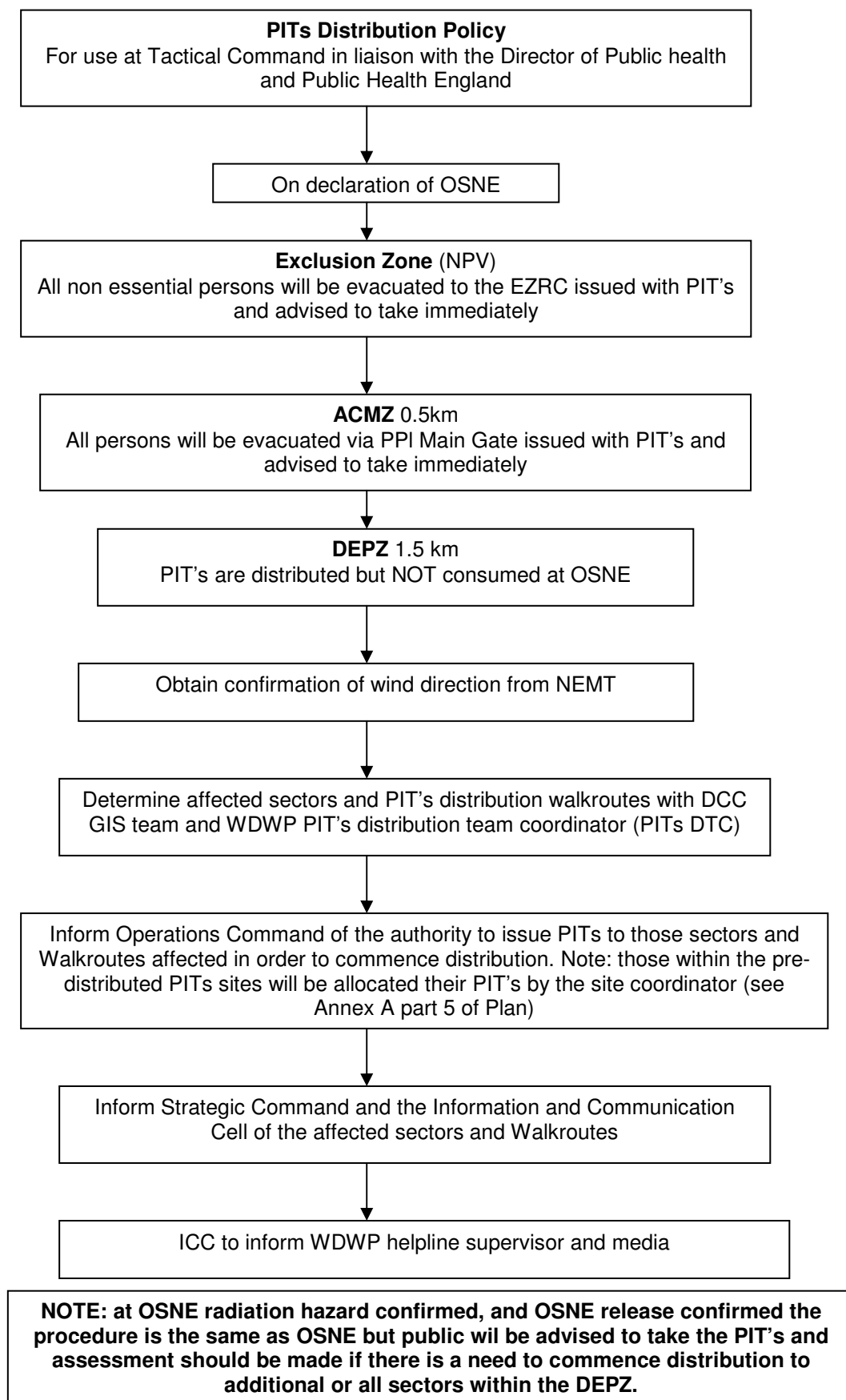
If you have a baby under three months old, you should make an appointment to see your doctor. This is because it is important for a doctor to check the thyroid hormone levels of young babies if they have taken Potassium Iodate.

If you are in the last three months of your pregnancy, you should make an appointment to see your doctor. This is because umbilical cord blood samples should be taken at birth for the baby's thyroid hormone measurement, if you have taken Potassium Iodate in the last three months of pregnancy.

WHAT IF I HAVE TABLETS LEFT OVER?

After the incident, please hand in any left over tablets to your local GP surgery.

PITs DISTRIBUTION PROCESS FOR USE AT TACTICAL COMMAND



PART 6

EMERGENCY SERVICES/AGENCIES RESPONSES

	Para
Introduction	6.1
Entry to the ACMZ	6.2
Dorset Police	6.3
Dorset Fire & Rescue Service	6.4
South Western Ambulance Service NHS Foundation Trust	6.5
West Dorset, Weymouth & Portland Borough Council	6.6
NHS Commissioning Board Area Team Wessex	6.7
Dorset County Council	6.8
Health and Safety Executive - Office for Nuclear Regulation	6.9
Maritime and Coastguard Agency	6.10
DCLG RED Role in Nuclear Emergencies	6.11

PART 6.1 - INTRODUCTION

- 6.1.1 Emergency exposures permit an employee to exceed an IRR99 radiation dose limit for employees over the age of 18 years of age. Not all radiation emergencies will involve emergency exposures for intervention personnel. The emergency exposures and emergency dose levels, which have been notified to the HSE, are detailed in the Portland Port Operators Emergency On-site Plan. The emergency exposures are justified for life saving or for preventing or reducing the radiation exposure of workers or the public
- 6.1.2 Non-Emergency Exposures: These are radiation exposures to employees in NERO roles supporting the Off-Site Emergency Plan. The radiation exposures for this group of personnel must not exceed the relevant IRR99 radiation dose limits. This will include personnel supporting the Gold, Silver and Bronze Command and Control organisations as well as emergency services personnel and doctors, nurses and local authority personnel etc.
- 6.1.3 Other Contingency Plans

Other Contingency plans which could be activated in conjunction with this plan (see also page 134):

1. Weymouth & Portland Borough Council Major Incident Plan
2. Dorset Major Emergency Media Plan
3. Weymouth & Portland Borough Council Rest Centre Activation Plan
4. NHS Commissioning Board Area Team Wessex Major Incident Plans
5. Dorset County Council Emergency Response Plan
6. BDPLRF Initial Responders Major Incident Manual (IRMIM)
7. Dorset Fire and Rescue Service Major Incident Plan
8. South Western Ambulance Service Trust Major Incident Plan
10. NHS Commissioning Board South

PART 6.2 – ENTRY TO THE AUTOMATIC COUNTER MEASURE ZONE

6.2 Arrangements for accessing the Automatic Countermeasure Zone during an emergency:

In an emergency intervention personnel will require access to the ACMZ.

Access to the ACMZ during an incident will operate via the Portland Port Main Gate. All personnel wishing to access the ACMZ must report to the Emergency Monitoring Headquarters located outside the Britannia Terminal where personnel will be briefed, and issued with essential personnel cards, Potassium Iodate Tablets and electronic dosimetry equipment. Each individual will be registered at this point so a record of personnel within the ACMZ is achieved.

Personnel from the NPV or the EZRC may be used to carry out intervention tasks within the ACMZ. If this is the case they will be processed through the standard entry and exit procedures for accessing the ACMZ.

A direct communication link from experts based at Operational Command Centre to personnel working within the ACMZ will be set up to:

- a) Maintain continual updates on the emergency and the tasks being undertaken
- b) Gain information regarding the emergency radiation dose levels that each individual is receiving to help enable experts to manage the health and safety of personnel working in the ACMZ.

A system for post-incident monitoring of personnel who have accessed the ACMZ during the incident will be put into place, with doctors examining the health of each individual that has been subject to emergency radiation exposure.

PART 6.3 - DORSET POLICE

- 6.3.1 **Notification.** Duty Officer, Portland Harbour Control will inform Dorset Police HQ - Control Room. The message will be in the following format:

OFF-SITE NUCLEAR EMERGENCY

'CLASSIFICATION - a qualifier may be applied either "Radiation Hazard Confirmed" or "Release of Radioactive Material Confirmed"
(For definitions see PART 2, PARAGRAPH 2.16)

NAME OF VESSEL

TYPE OF VESSEL

LOCATION OF VESSEL

PREVAILING WEATHER CONDITIONS

- 6.3.2 **Deployment.** On receipt of the warning Dorset Police Control will authenticate the message with Harbour Control, Portland Port.
- 6.3.3 Dorset Police will then decide on the location of the Tactical Command Centre and proceed with the Cascade Call Out system as indicated at page 60.
- 6.3.4 Officers from Dorset Police will proceed to the Tactical Command Centre. In addition the Strategic Co-ordination Centre will also be activated and preparations for staffing will be made to provide support to the Tactical Commanders.
- 6.3.5 Police Officers are not designated as 'intervention personnel' and are not subject to emergency exposures. Wherever possible contingency plans should not seek to place police officers in a situation where they will receive additional levels of radiation. As such, Police normal activity in response to this plan will be to seek to avoid it e.g. by placing a cordon of officers at an agreed safe distance from a release, having arranged for the evacuation or shelter of those in the affected area as is appropriate to the circumstances.
If an emergency road closure is required to prevent vehicle access to an affected area, Dorset Police can direct vehicles, thereby giving a lawful instruction which, should the public refuse to abide by, can be dealt with accordingly e.g. arrest. A cordon can be put in place and members of the public advised not to enter but police cannot PREVENT pedestrians from entering a cordon unless it is in relation to terrorism. Police can only ADVISE them it is unsafe. If they have children with them Police can take the children into Police care for their own safety.
- 6.3.6 Where an unforeseen circumstance arises which requires a police presence, a specific risk assessment will be undertaken at the time. There will remain a need to manage the risk and exposure levels will be kept as low as possible given all the circumstances.

PART 6.4 - DORSET FIRE & RESCUE SERVICE

- 6.4.1 **Notification.** Dorset Police Control will notify Dorset Fire & Rescue Service (DFRS). It will be clear that the call is to attend a reactor accident situation.

Note: It is important to note that the alert may come from sources other than Dorset Police and it may not be evident at the outset that the subject involves a reactor source. Dorset Fire and Rescue Service Control will be provided with telephone contact details for the vessel to enable an alert from a third party to be verified.

- 6.4.2 **Deployment.** Minimum first attendance will be an appropriate number of appliances. Additional attendance will depend on the extent of the situation. All DFRS attending will enter Portland Port via the Main Gate unless otherwise directed order a fast track permit to enter system.

- 6.4.3. **Reception.** Upon arrival at the Main Gate, should the incident present a radiological threat, appliances and personnel will proceed to Britannia Terminal car park to receive a briefing and enable a risk assessment to be completed by DFRS personnel. Only then will personnel and appliances be deployed to the scene.

- 6.4.4. **Response.** Officers from DFRS will be provided at the following locations:

- a) Tactical Command Centre.
- b) Operational Command Centre.

- 6.4.5 As required by REPPiR Regulation 14 Dorset Fire and Rescue Service has identified the possible need for some of its employees to be **subject to emergency exposures**. Dorset Fire and Rescue Service have agreed to apply their normal operational procedures, which allow for male fire fighters to be exposed up to 20mSv total dose absorbed per incident. Female fire fighters will not be subject to emergency exposures. Dorset Fire and Rescue Service has consequently:

- a) Identified those employees who have a role to play in the emergency plan because their skills are required to achieve foreseeable actions, and have their agreement to undergo any emergency exposure.
- b) Given them appropriate training in radiation protection and such information and instruction as is suitable and sufficient for them to know the risks to health from the emergency exposure, and the precautions to be taken. A copy of the guidelines laid down in Regulation 14 is at the beginning of this Part 6.

PART 6.5 – SOUTH WESTERN AMBULANCE NHS FOUNDATION TRUST

- 6.5.1 **Notification.** Normally, the Dorset Police Control Room will alert South Western Ambulance NHS Trust. It will be made clear that the call is to attend a nuclear reactor accident situation.

However, it is important to note that the alert may originate from a source other than Dorset Police and in these circumstances it may not be clear at the outset that the alert appertains to a nuclear incident.

South Western Ambulance will notify the Dorset and PHE Dorset Hants, IOW Unit and the NHS Commissioning Board Area Team Wessex.

- 6.5.2 **Deployment.** Initial first attendance will be an appropriate number of vehicles as well as Ambulance Officers. The number and type of vehicles will depend on the extent of the incident.

In the absence of any clear information of the nature or extent of the nuclear incident, the predetermined attendance will be:

- a) 5 Emergency and Urgent (E&U) Ambulances
- b) 1 Ambulance Officer

All ambulance personnel will deploy to the RVP at Ferry Bridge unless otherwise directed.

- 6.5.3 **Reception.** All ambulance personnel will be met at the Main Gate and will be briefed by Security Personnel before proceeding any further.

Depending on the extent and progress of the incident, arriving ambulance resources may be directed to a holding area alongside the Forward Control Point at the Britannia Terminal.

Upon arrival at either the holding area, or the forward control point, ambulance personnel will be issued with emergency packs.

Each emergency pack contains;

- a) 1 x Personal Electronic Dosimeters (PEDs)
- b) 1 x Thermoluminescent Dosimeters (TLDs)
- c) 2 x Potassium Iodate Tablets (PITs)
- d) 1 x Particulate Respirator

The PED must be switched on using the black “on” button, which is located at the top right hand side of the dosimeter. Ambulance staff must monitor their PEDs and make regular reports of the readings to the Ambulance Officer in the Tactical Command Centre. Personnell will be directed to teke the PITs when appropriate before any PED alarm. If the PED alarms, then the ambulance staff must take two PITs, put on the particulate respirator and evacuate to the Holding Area. The fact that their PED has alarmed must be

reported to the Ambulance Officer in the Tactical Command Centre (TCC), who in turn will report this to the Ambulance Officer in the Operations Command Centre, Portland Port.

6.5.4 **Response.** Ambulance Officers will be deployed to the following locations:

- a) Tactical Command Centre (TCC)
- b) Incident Commander's Cell

Ambulance resources will not be deployed into the Inner Cordon (Automatic Countermeasures Zone (ACMZ)). The Inner cordon will be set at approximately 500 metres from the incident.

Prior to the emergency, in accord with REPIR 2001, South Western Ambulance NHS Trust will:

- a) Identify those staff who may be subject to emergency exposures.
- b) Identify staff who are authorised to permit other suitably equipped and trained staff who may receive emergency exposure to radiation to attend the incident.
- c) Provide those staff with appropriate training in the field of radiation protection and such information and instruction as is suitable and sufficient for them to know the health risks created by the exposure to radiation and the precautions which must be taken.

In the event of staff receiving an emergency dose of radiation, South Western Ambulance NHS Trust will:

- a) Make arrangements for medical surveillance by an appointed doctor or employment medical adviser to be carried out without delay for those staff who receive emergency exposure.
- b) Make arrangements with an approved dosimetry service for dose assessments to be carried out on those staff who receive emergency doses. (This will be separate from any other assessment previously made). These dose assessments are to be made available to the appointed doctor or employment medical advisor carrying out the medical surveillance, South Western Ambulance NHS Trust, and the Health & Safety Executive.

Contaminated casualties with non life threatening injuries will be decontaminated by MoD personnel **before** transportation to hospital. This decontamination will take place at a safe distance from the incident and will occur before any secondary triage or clinical intervention. (Other than basic life support or airway protection.)

Treatment and transport of contaminated casualties with life threatening injuries will not be delayed.

6.5.5 Triage

The Cruciform® method of triage will be used, using the Cruciform® cards found on ambulances and major incident trailers.

Immediate	(Red)	Life threatening injuries
Urgent	(Yellow)	Serious, but not life threatening
Delayed	(Green)	No obvious injuries
Expectant	(Green with red flashes)	Expected to die soon (unsalvageable)
Dead	(Green with white flashes)	Recognised as being dead by first responders
Contaminated	(Green with yellow flashes)	Needs to be decontaminated before removal
Dead	(White)	Confirmed as dead by legally qualified person.

The Triage Team of SWAST, as detailed in its own Major Incident Plan will carry out this triage.

6.5.6 Radiation Exposure. In an emergency involving radiation, any radiation dose received by ambulance personnel will not be any greater than the dose detailed in The Radiation (Emergency Preparedness and Public Information) Regulations 2001 (REPPIR), (Regulation 2(1) of Schedule 1).

The exposure of ambulance personnel will be supervised by the approved dosimetry service. Medical surveillance will be carried out by an appointed doctor or employment medical advisor, as detailed in REPPIR 2001.

These procedures do not supersede South Western Ambulance NHS Trust's major incident plan, which will be used alongside these procedures in the event of an incident covered by the Portland Port Off-site Reactor Emergency Plan.

PART 6.6 – WEST DORSET, WEYMOUTH & PORTLAND COUNCIL

- 6.6.1 **Notification.** The DCC Duty Emergency Planning Officer will notify West Dorset, Weymouth & Portland (WDWP) Council. It will be clear that the call is for response to a reactor accident situation.

Note: It is important to note that the alert may come from sources other than Dorset Police and it may not be evident at the outset that the subject involves a reactor source.

- 6.6.2 **Response.** Officers from West Dorset, Weymouth & Portland Council will be at the following locations:

- a) Strategic Command Centre
- b) Tactical Command Centre

- 6.6.3 As required by REPIR Regulation 14 West Dorset, Weymouth & Portland Council has considered the possible need for some of its employees to be subject to emergency exposures, and consequently has concluded it will seek to avoid any exposure.

- 6.6.4 WDWP Council have identified those employees who have a role to play in the emergency plan because their skills are required to achieve foreseeable actions.

- 6.6.5 WDWP Council has given them appropriate training in radiation protection and such information and instruction as is suitable and sufficient for them to know the risks to health from the emergency exposure, and the precautions to be taken. A copy of the guidelines laid down in Regulation 14 is at the beginning of this Part 6.

PART 6.7 - NHS COMMISSIONING BOARD AREA TEAM WESSEX

- 6.7.1 **Notification.** In the event of an incident, South Western Ambulance Control will notify both the Consultant Physician in Health Protection at PHE Dorset, Hants, IOW and the NHS Commissioning Board Wessex duty Director who in turn will contact the Director of Public Health.
- 6.7.2 **Deployment.** The Director of Public Health will attend at the Strategic Command Centre, (see Part 4 for details), and will Chair the Scientific & Technical Advisory Cell (STAC).
- 6.7.3 The Consultant Physician for PHE Dorset, Hants, IOW will also attend at the Strategic Command Centre, as a member of the STAC, and can Chair the STAC in the absence of the Director of Public Health.
- 6.7.4 Both the PHE and NHS CB area Team Wessex will deploy Silver Liaison Managers to the Tactical Command Centre (see Part 2, page 55).
- 6.7.5 **Response.** The Public Health Director (or deputy) will authorise the distribution and taking of Potassium Iodate tablets (see Part 5).
- 6.7.6 Dorset NHS CB Area Team Wessex Tactical will alert NHS Direct 111 that there has been an incident in preparation for potential public concern and queries.
- 6.7.7 Dorset NHS CB area Team Wessex Tactical will liaise with SW Ambulance Tactical regarding casualty arrangements and if appropriate establish links with Dorset County Hospital to assist in acute bed availability planning.
- 6.7.8 If required, NHS CB Area Team Wessex will establish its own Control Room at its Southampton headquarters.
- 6.7.9 The designated Hospitals are Dorset County Hospital and Poole Hospital.

PART 6.8 - DORSET COUNTY COUNCIL

6.8.1 Notification. Dorset Police Control will notify Dorset County Council Duty Emergency Planning Officer (DEPO). It will be clear that the call is for response to a reactor accident situation. DEPO will proceed with the Activation of NERO as per page 60. All contact details should be included in the pre-visit directory as part of NPV pre-visit arrangements. (The Emergency Contacts Directory can also be used).

Note: It is important to note that the alert may come from sources other than Dorset Police and it may not be evident at the outset that the subject involves a reactor source.

6.8.2 Response. Personnel from Dorset County Council will be at the following locations:

- a) Strategic Command Centre
- b) Tactical Command Centre

6.8.3 As required by REPPiR Regulation 14 Dorset County Council has considered the possible need for some of its employees to be **subject to emergency exposures**, and consequently has concluded it will seek to avoid any exposure.

6.8.4 Dorset County Council has not sought the agreement of staff to undergo emergency exposure as it has not identified foreseeable actions that will require it. The County Council will plan to avoid such a necessity.

PART 6.9 HSE – OFFICE FOR NUCLEAR REGULATION

- 6.9.1 For an off-site nuclear emergency at a MoD site, including Operational Berths, ONR may deploy staff to the affected site, the Off-Site Facility (OSF), and the National Security Council (Threats, Hazards, Resilience and Contingencies) (NSC THRC) Committee in London. ONR will provide advice to these teams during the event.
- 6.9.2 ONR will witness, monitor and record operator's actions; take enforcement action if appropriate; and provide independent information/advice to senior staff in HSE, relevant authorities and other government departments. ONR's response will be led and managed by the ONR Response Centre Director.
- 6.9.3 ONR will ascertain the facts surrounding the emergency, assess the safety of the affected site, including the licensee's or operator's proposed actions, deploy ONR staff as required, and formulate ONR strategy and response.
- 6.9.4 The **ONR Site Team** will:
- a) Ascertain the facts on the emergency including establishing the adequacy of actions taken to secure a safe plant state and the advice given to the authorities off-site,
 - b) Submit routine reports on events at site to the ONR Response Centre,
 - c) Represent ONR at or near the site if required
- 6.9.5 The **ONR Off-site Facility Team** will:
- a) Provide advice and support to the ONR Response Centre Director,
 - b) Consider all aspects of the emergency which affect the site,
 - c) Provide advice to the Off-Site Facility (OSF) strategic co-ordination group,
 - d) Represent ONR at local press briefings.

PART 6.10 – MARITIME AND COASTGUARD AGENCY

The Maritime and Coastguard Agency is an Executive Agency of the Department of the Environment, Transport & Regions.

The Maritime and Coastguard Agency is responsible for:

- Minimising loss of life amongst seafarers and coastal users.
- Responding to maritime emergencies 24 hours a day.
- Developing, promoting and enforcing high standards of marine safety.
- Minimising the risk of pollution of the marine environment from ships and, where pollution occurs, minimising the impact on UK interests.

ACTIONS OF MCA - HM COASTGUARD

6.10.1 HM Coastguard will open an Incident in their Command and Control System, and establish communications with the Police Incident Control. The Coastguard Maritime Rescue Co-ordination Centre (MRCC) responsible for the District in which the incident occurs, will be alerted, to co-ordinate Coastguard actions on or near to the scene.

6.10.2 If the SCC is activated, the MCA may dispatch suitable personnel to attend. Until the arrival at the SCC of the CG Liaison Officer (CGLO) or CG Silver Commander, information flow will remain via the Police, either at the SCC, or Police Operations Control Room.

6.10.3 HM Coastguard will initiate Maritime Safety Information (MSI), Alert or Distress broadcasts as necessary using Radio, NAVTEX and/or Satellite Communications Systems at the request of the Police Incident Commander/SCC Liaison Officer.

6.10.4 HM Coastguard will conduct enquiries to establish the safety of Vessels or persons which may be in any potential danger areas, in consultation with the Police Incident Commander and SCC Liaison Officer.

6.10.5 HM Coastguard will alert the MCA Duty Counter Pollution and Salvage Officer to the incident.

6.10.6 Should there be an associated and concurrent Maritime Search and Rescue (SAR) incident, HM Coastguard will continue to fulfil its statutory obligations and may task declared facilities afloat and on shore to assist the other emergency services, in consultation with the Police Incident Commander and after appropriate risk assessment of the operating environment.

6.10.8 Assist with the distribution of Potassium Iodate tablets as per Part 5, PITs Distribution Plan.

PART 6.11 – DCLG RED ROLE IN NUCLEAR EMERGENCIES

Following activation of DCLG RED (Department for Communities and Local Government, Resilience and Emergencies Division) emergency response arrangements (see NERO cascade), DCLG RED will send an Assistant Government Liaison Officer to the Strategic Co-ordination Centre to support the Government Liaison Team (within two hours). He/she will work closely with the Military Co-ordinating Authority (MCA) appointed by MOD, and will also liaise closely with representatives from other Government agencies.

Their main duties will be as follows:

- to act as the GLO until the MCA arrives at the SCG
- to liaise with and brief the MCA prior to their arrival, unless the MCA arrives first
- to support the MCA in the delivery of their duties
- where necessary, assist in the co-ordination between Government, and local bodies by facilitating discussions and contact and by acting as a liaison point
- to compile situation reporting on local consequence management ensuring DCLG and MCA are fully briefed
- to assist in recovery planning from the outset of preparations, which might be expected to start in the emergency phase. For this, DCLG RED will attend meetings of the Recovery Working Group.

Where necessary, DCLG RED will activate an operations centre to:

- facilitate national coordination and assurance for situation reporting on national consequence management
- facilitate mutual aid requests
- address requests for national assets
- liaise and share information with devolved administrations
- support DCLG staff in discharging their role and engage other necessary bodies
- co-ordinate and support DCLG attendance at COBR at ministerial and official levels
- communicate Top Line Briefs to LRFs
- support the LGD with organising Ministerial or VIP visits in consultation with local partners whilst the SCG is still standing

A Response Co-ordinating Group (ResCG) may be convened where the response to an emergency would benefit from some co-ordination or enhanced support at a cross-SCG level. In such circumstances, DCLG may, on its own initiative, or at the request of local responders, or of the LGD, in consultation with the Cabinet Office, convene a ResCG in order to bring together appropriate representatives.

In the emergency response phase DECC will be supported by a minimum of two officials from DCLG RED at the SCG. These representatives will be scaled back as appropriate as and when the lead government department for recovery officials arrive. DCLG RED will support the transition from response to recovery by ensuring an effective handover to Lead Government Department officials taking up responsibility for supporting local responders and any Recovery Coordinating Group(s).

PART 7
REMEDIATION PROCEDURES

	Para
Introduction	7.1
Remediation Working Group	7.2
Membership	7.3
Working Group Chair	7.4
Co-ordinating Group Chair	7.5
Issues During the Recovery Phase	7.6
End of the Off-Site Emergency	7.7
Information and Advice	7.8
Effectiveness of Recovery Countermeasures	7.9
Decontamination Measures	7.10

Annex A - Information / Advice on Recovery Countermeasures

TABLE OF COUNTERMEASURE CATEGORIES, TECHNIQUES &
EFFECTIVENESS

ASSOCIATED PLANS AND GUIDANCE DOCUMENTS

7. REMEDIATION PROCEDURES

7.2 Introduction

This section contains the procedure for the transfer of the Chair of the Co-ordinating Committee from the Police to the local authority. Advice on remediation procedures is now contained in the HPA – RPD – 064 UK Recovery Handbooks for Radiation Incidents: 2009 (see 7.8 below).

7.2 Remediation Working Group

At an appropriate time during the initial response phase, a Remediation Working Group should be convened as a Sub Committee of the Co-ordinating Group. The Working Group, when established, will meet at regular intervals to consider the long-term implications of the accident and to formulate strategies for the return to normality. The Working Group will brief the Co-ordinating Group on a regular basis throughout the response phase of the emergency and this action will continue into the remediation phase.

Remediation issues may include:

- a) characterising the extent and nature of off-site contamination arising from the accident;
- b) preparing an environmental impact characterisation report;
- c) identifying options for clean up of contamination and disposal of wastes;
- d) preparing a suggested remediation plan for approval by the Co-ordinating Group;
- e) assessing the result of post-remediation monitoring in order to ensure objectives have been achieved;
- f) preparing a post-remediation report.

7.3 Membership

The work of the Remediation Working Group will begin at the strategic level but once appropriate representatives become available, will move to an agreed local authority facility depending on the areas affected. Membership may comprise of representatives from the following agencies:

- a) West Dorset, Weymouth & Portland Council
- b) Dorset County Council
- c) Strategic Health Authority
- d) NHS CB area Team Wessex

- e) Public Health England Dorset, Hants, IOW
- f) Environment Agency
- g) Department of the Environment Food & Rural Affairs (DEFRA)
- h) Food Standards Agency (FSA)
- i) Wessex Water
- j) MoD
- k) Other agencies as appropriate.

7.4 Working Group Chair

The Chair of the Working Group will normally be undertaken by WDWP Council, unless the impact of the accident has significantly affected West Dorset District Council, Purbeck District Council and Dorset County Council. In this instance it may be more appropriate for another authority to chair the Group.

7.5 Co-ordinating Group Chair

Following notification that the on-site emergency is over, the Strategic Co-ordinating Group will consider measures for the return to normality. At some point after resolution of the initial phase, the chair of the Strategic Co-ordinating Group will transfer from the Police to the appropriate local authority; based on the prevailing weather conditions this will normally be the Chief Executive, WDWP Council. This will happen only when the following criteria have been met:

- a) the on-site incident has been contained and there is no significant risk of a recurrence.
- b) public safety measures in place.
- c) no significant issues remain to be resolved from the post-incident phase;
- d) the Strategic Co-ordinating Group activities are firmly established in a proactive role;
- e) WDWP Council (or other local authority) emergency centre and individual organisations are functioning effectively and have the necessary:
 - 1. resourcing,
 - 2. communication,

- 3. logging and media co-ordination support;
- f) that Central Government (Naval Co-ordinating Authority, Nuclear Emergency Briefing Room) support hand-over.
- g) that WDWP Council (or other local authority) is able to accept the Chair of the Strategic Co-ordinating Group.

7.6 Issues During the Recovery Phase

Issues to be considered during the recovery phase may include:

- a) the public health situation;
- b) public access to contaminated areas;
- c) decontamination procedures;
- d) finance or compensation claims;
- e) relocation of members of the public;
- f) evidence for a public inquiry, etc.

7.7 End of the Off-Site Emergency

The Strategic Co-ordinating Group will consider the timing and method of terminating the off-site emergency arrangements, including the content of final statements to the media. The end of the emergency will be announced through the local media channels, which are the same used for keeping residents informed during the emergency. More information is available in the SCG Media Cell Operating LRF Protocol.

7.8 Information and Advice

Further information and advice on remediation a procedure is now contained in the HPA – RPD – 064 UK Recovery Handbooks for Radiation Incidents: 2009 and details can be accessed on the following website:

<http://www.hpa.org.uk/Publications/Radiation/HPARPDSeriesReports/HPARP D064/>

Annex A contains information and advice (extracted from HPA CRCE (formerly RPD) Memorandum: M726) on critical planning issues for the implementation of remediation measures:

- (a) long term exposure pathways;
- (b) the purpose of remediation measures;
- (c) the re-instatement of pre-emergency conditions;
- (d) The various remediation measure options,
- (e) HPA CRCE principles for intervention;
- (f) the recommended remediation intervention criteria.

7.9 Effectiveness of Recovery Countermeasures

HPA CRCE advice on recovery countermeasures recognises the following categories of measures:

- (a) Category A. Those measures that are moderately dose-effective, incur relatively little disruption or resource, and which can be completed soon after the emergency.
- (b) Category B. Those measures that are more strongly dose-effective, but which incur significant disruption and/or resources, or can only be carried out over protracted periods.
- © Category C. Those measures that are either poorly dose-effective or are only moderately dose-effective and incur significant disruption and/or resources.

Examples of countermeasures likely to fall into each of these categories are listed in the Table at **Annex A**

7.10 Decontamination Measures

The effect of decontaminating a particular surface on the dose received by an individual is dependent upon the contribution of that surface to the individual's total dose. The importance of a surface in contributing to dose depends on a number of factors. These include the relative deposition into different surfaces, how fast activity weathers off the surface, where it is redistributed to and where people spend their time. Some of the measures are listed below.

- (a) Vacuum Sweeping & Fire Hosing. Among the lowest cost countermeasures. They also have the advantage that they could be carried out relatively quickly, with little subsequent disruption to the population.
- (b) Grass Cutting & Collection. This is most effective following deposition under dry conditions, as a larger proportion of the deposited activity is intercepted by the grass. The effectiveness of this technique will depend on the length of the grass at the time of deposition, being less effective for recently mown grass, and on its implementation before substantial rain falls.
- (c) Soil Removal, Ploughing, Rotorvating & Digging. This can lead to relatively large dose reductions, of the order of 40-60%. The choice of measure would depend on the size of the individual areas affected.
- (d) Tree Felling/Shrub Removal. This procedure can lead to some reduction in dose in the first year, following dry deposition, but is generally only potentially worthwhile in certain specific situations (i.e., where deposition has occurred in spring or summer under dry conditions and where there is a high density of trees and shrubs around buildings).
- (e) Restricted Access Measures. The dose-effectiveness of restricted access measures will depend upon both the potential exposure rate and the length of time individuals would spend in an area if restrictions were not imposed.

Annex A - Information / Advice on Recovery Countermeasures

HPA CRCE INFORMATION & ADVICE ON RECOVERY COUNTERMEASURES INTRODUCTION

A summary of the information and advice from HPA CRCE (formerly RPD)
Memorandum: M726 is contained in this Annex

Long Term Exposure Pathways

The main potential pathways of exposure in the longer term after such emergencies are:

- (a) External irradiation from radionuclides deposited in the environment;
- (b) Inhalation of re-suspended radionuclides;
- (c) Ingestion of contaminated foods;

Purpose Of Recovery Countermeasures

The recovery phase is the period when less urgent countermeasures are implemented to protect the public from longer term, chronic risks. The recovery phase starts at the end of the emergency phase and continues until all those affected have resumed normal lifestyles.

Reinstatement Of Pre-Emergency Conditions

The most obvious way of facilitating the population's return to normal lifestyles is the reinstatement of pre-emergency conditions. Unfortunately, where an emergency occurs which is so large that recovery countermeasures are necessary, this will rarely be a practicable option. Unless the contaminated area is very limited, removal of all detectable contamination is likely to have devastating environmental consequences. In other words, reinstatement of pre-emergency conditions, following a release of particulate radionuclides to atmosphere, is, at best, likely to be very difficult. A recovery strategy may well be more effective if it is developed in consultation with the affected population. This will be achieved by using existing mechanisms to consult with recognised Community Associations or Community Groups in the affected area.

Recovery Countermeasures

Recovery Countermeasures to be considered will normally take the following form:

- (a) **Decontamination Measures:** Decontamination techniques reduce exposure by treating contaminated areas directly. Techniques include removing contaminated materials from the area and redistributing or fixing radionuclides so that they are less available to contribute to exposure. Removal of contaminated soils or surfaces reduces the exposure of those living in a contaminated area, but results in contaminated waste for which an appropriate disposal route has to be found. On the other hand, redistribution or fixing of the contamination avoids waste disposal problems, but leaves the contamination in situ, as a potential long-term hazard.

(b) **Restricted Access Measures:** Restricted access measures reduce exposures by removing people from areas of contamination, or by controlling the time spent in such areas. Such measures may range from preventing or limiting access to localised contaminated areas (e.g. the site of the emergency, or recognised hot spots), to relocation of the resident population from, and prohibition of all access to, an area for weeks, months, or even years, until general exposure levels have reduced to acceptable levels.

Examples of these are given in the table below.

Recovery Intervention Criteria

Doses for comparison with the criteria are as follows:

- (a) those that are moderately dose-effective, incur relatively little disruption or resources, and which can be completed soon after the emergency; **Category A.**
- (b) those that are more strongly dose-effective, but which incur significant disruption and/or resources or can only be carried out over protracted periods; **Category B.**
- (c) those that are either poorly dose-effective or are only moderately dose-effective and incur significant disruption and/or resources. **Category C.**

Measures in the first category (Category A) would generally be completed within the first month following the end of the release, and, once completed, would incur no further disruption to the lives of those living in the area.

Recovery measures in the second category (Category B) are dose-effective measures that are difficult to complete within the first month following cessation of the release(s), or which continue to cause disruption after they are completed or which require very substantial resources.

Measures in the third category (Category C) would not, in general be justified on radiological protection grounds. However, they might be included in a recovery strategy, either because the circumstances of the emergency prevented other, less resource-intensive countermeasures being implemented, or for reasons other than dose reduction

TABLE OF COUNTERMEASURE CATEGORIES, TECHNIQUES & EFFECTIVENESS

Category (Note a)	Technique	Dose Effectiveness (Note b)
A. Moderately dose-effective; relatively low resources/disruption; can be completed within about 1 month (with minimal continuing disruption after this time)	Ploughing large areas of grass (e.g. playing fields, parks).	20 to 40%
	Extended evacuation; short lived radionuclides	20 to 40%
	Vacuum sweeping - all metalled surfaces.	20 to 40%
	Fire hosing - all metal surfaces	20 to 40%
	Grass cutting and removal – public and private areas.	20 to 40%
	Temporary relocation for 1 month.	30 to 60%/20 to 40% <10% (Note c)
B. Highly dose-effective; high resources/disruption; timescale of months or years for completion (including cessation of disruption).	Turf removal and replacement - public and private areas	30 to 60%
	Rotovating all soil/grass areas (assumes all shrubs and plants removed and replaced).	30 to 60%
	Double digging all soil/grassed areas (assumes all shrubs and plants removed and replaced).	30 to 60%
	Turf and soil removal and replacement - all soil/grass areas (assumes all shrubs and plants removed and replaced).	30 to 60%
	Road planing and replacement	30 to 60%/20 to 40% (Note d)
	Prolonged or permanent relocation	30 to 60%
C. Low – moderately dose-effective; moderate high resources/ disruption.	Fire hosing buildings	<10%
	Sandblasting walls	<10%
	Tree felling/plant and shrub removal and replacement	20 to 40%
	Stripple coating - metalled surfaced and buildings	<10%
	Ammonium treatment of buildings	<10%
	Roof replacement	<10%
	Cleaning of indoor surfaces.	<10%

Notes:

(a) This grouping into categories is inevitably very broad; the actual dose effectiveness, disruption and resource requirements of the countermeasures would be highly dependent on the exact circumstances of the emergency and its aftermath.

(b) Dose-effectiveness is defined as the reduction in the overall exposure from deposited gamma-emitting material from all surfaces in an urban environment:

- i. high dose-effectiveness (30 to 60%);
- ii. moderate dose-effectiveness (20 to 40%);
- iii. low dose-effectiveness (<10%).

(c) Dose-effectiveness is very dependent on the effective half-lives of the radionuclides involved; for radionuclides with a half-life of a few days (e.g. iodine-131) relocation for 1 month would be very highly dose-effective (i.e., approaching 100%).

(d) High dose-effectiveness possible for deposition in wet conditions only, since relatively more dose arises from other surfaces following dry deposition.

ASSOCIATED PLANS AND GUIDANCE DOCUMENTS

This Plan should be read in conjunction with:

ACPO Emergency Procedures Manual,
South Western Ambulance Service NHS Trust Major Incident Plan,
Dorset Media Action Plan,
Dorset County Council Emergency Response Plan,
Dorset County Council Emergency Contacts Directory,
Dorset County Council Rest and Reception Centre Plan,
Dorset County Council Psychological Trauma Response Plan,
Dorset County Council Temporary Mortuary Site Logistics Plan,
Dorset Fire & Rescue Service Emergency Incident Procedures,
LRF Initial Responders Major Incident Manual,
LRF STAC Plan,
LRF Recovery Plan,
LRF Site Clearance Plan,
LRF Strategic Mass fatalities Plan,
LRF Identification of Vulnerable People in a Crisis Protocol,
Local Authority Mutual Aid Provision Memorandum of Understanding,
NHS Bournemouth, Dorset and Poole Joint Major Accident Plan,
Purbeck District Council Emergency Plan,
HPA-RPD-064,
UK Recovery Handbook for Radiation Incidents – water,
UK Recovery Handbook for Radiation Incidents – food,
UK Recovery Handbook for Radiation Incidents – inhabited areas,
Nuclear Emergency Planning Liaison Group Consolidated Guidance,
Strategic Co-ordinating Group Media Cell Operating Protocol.