NRTE Vulcan

Off-Site Emergency Plan

REPPIR

April 2004

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REVIEW RECORD

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Orkney Islands Council/NHS Orkney

Emergency Planning Officer 26

Scottish Environment Protection Agency (SEPA)

Divisional Manager, Dingwall 27

Scottish Water (SW)

Managing Director, Inverness 28

Scottish Executive (SE)

Justice Department, Edinburgh 29

Scottish Executive Environment and Rural Affairs Department (SEERAD)

Northern Office, Thurso 30

Food Standards Agency (FSA)

Assistant Director, Science and Enforcement; FSA Scotland (Aberdeen) 31
Head of Branch, RPRM(C), FSA HQ (London) 32

Health Protection Agency (HPA) – Radiation Protection Division

Chilton, Didcot, Oxon 33

Nuclear Installations Inspectorate (NII)

Bootle 34

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Bettyhill 46
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*** All personal and confidential details removed from these copies.**

INTRODUCTION

The plan outlines the roles and responsibilities of the emergency services and other agencies, and summarises their expected response to an incident at the Vulcan Naval Reactor Test Establishment.

This plan is intended as an initial response document only. Once an incident has developed, each agency would then refer to their own generic plan to ensure that their own area of responsibility is fulfilled.

This plan has been prepared with regard to and in compliance with the Radiation Emergency Preparedness and Public Information Regulations 2001 (REPPIR) by Highland Council Emergency Planning in collaboration with Rolls Royce and the Royal Navy, and under the auspices of the Highlands and Islands Emergencies Co-ordinating Group.

The following Organisations and Agencies were consulted as part of the plan compilation and production process.

Food Standards Agency
Health Protection Agency – Radiation Protection Division
Highland and Islands Fire Brigade
Maritime and Coastguard Agency
NHS Highland
Northern Constabulary
NRTE Vulcan
Nuclear Installations Inspectorate
Orkney Islands Council
Scottish Ambulance Service
Scottish Environment Protection Agency
Scottish Executive
Scottish Water
UKAEA Dounreay

The Plan will be reviewed at intervals of no greater than 12 months.

SECTION 1 : AIMS AND OBJECTIVES

1.1 Aim

The aim of this plan is to set out the initial arrangements for dealing efficiently with an incident involving the nuclear reactor or the handling of nuclear fuel at Vulcan NRTE.

1.2 Objectives

The principle objectives of the plan are:

- To clarify the roles of the participating agencies through defined responsibilities.
- To provide an initial response document for all the agencies.
- To ensure procedures are in place and remain relevant and appropriate and, therefore, meet both the relevant regulations and responding agencies requirements in order to achieve the aim of this plan.

SECTION 2 : HAZARD IDENTIFICATION AND RISK EVALUATION (HIRE) REPORT

2.1 HAZARD IDENTIFICATION AND RISK EVALUATION (HIRE) REPORT

2.1.1 Introduction

The Radiation (Emergency Preparedness and Public Information) Regulations 2001 require a Hazard Identification and Risk Evaluation (HIRE) to be undertaken for any premises containing more than the quantity of radioactive material specified in the Regulations. This document is the Report of Assessment of the HIRE of the Vulcan Naval Reactor Test Establishment (Vulcan NRTE). The Report of Assessment, together with such supporting information as deemed necessary, is provided in order to assess the risk to the health or safety of persons who could be affected by the work with ionising radiation undertaken at Vulcan NRTE.

NOTE: Some sections of this report of assessment necessarily contain information in an abbreviated form and with limited technical detail. This has been done in the interests of national defence and public security and with the agreement of the Health and Safety Executive (HSE) who have exercised their powers under Regulation 16 (6) of REPPIR. The HSE have access to fuller and more detailed classified information to satisfy themselves on the acceptability of this assessment.

2.1.2 Location and Environment

2.1.1.1 **Operator Name:** Naval Superintendent, Vulcan NRTE

2.1.1.2 **Operator Address:**
Vulcan NRTE
Dounreay
THURSO
Caithness
KW14 7TY

2.1.1.3 **Site Address:**
Vulcan NRTE
Dounreay
THURSO
Caithness
KW14 7TY

2.1.3 History

Construction began on site in 1957 with the first reactor operational in 1965.

The Vulcan Naval Reactor Test Establishment (NRTE) is a Ministry of Defence (MoD) establishment housing the prototype nuclear propulsion plants of the type operated by the Royal Navy in its nuclear submarine fleet.

For over 40 years Vulcan has been the cornerstone of the Royal Navy's nuclear propulsion programme, testing and proving the operation of four generations of reactor core. Its reactors have significantly led the operational submarine plants in terms of operating hours, proving systems, procedures and safety.

Rolls-Royce, who design and procure all the reactor plants for the Royal Navy from their Derby headquarters, operate Vulcan on behalf of the MoD and employ around 260 staff there. The Nuclear Propulsion Team Leader who administers the site, is represented by the Naval Superintendent who acts as the MoD Head of Establishment and is 'Authorised' for operation of the entire site, including the nuclear plant. He is supported by a small team of naval staff.

The name Vulcan comes from the Roman god of craftsmen – whose main tool was fire. He used it to alloy precious metals and to mould jewellery and weapons. The history was not lost on the British and the name was first used for a British fire ship in 1691 at the battle of Barfleur.

The Motto for Vulcan: Vis fortibus arma – "Strength is a weapon of the brain" is particularly applicable to the naval nuclear programme.

Nuclear technology, at a stroke, transformed submarines from slow underwater vessels able to operate at a few knots submerged for up to a day, to warships capable of over 20 knots with the ability to stay underwater for months, operating unseen and undetected.

Vulcan has adopted many different roles in support of the UK's submarine fleet over the years, including:

- A test bed for evolving reactor technology;
- A proving plant for sea-going equipment;
- A training facility for nuclear submarine engineers;
- A test rig for the investigation of loss of coolant conditions;
- A refurbishment and test facility for submarine reactor cooling pumps.

The UK naval nuclear programme demonstrates design, construction and testing to the highest levels.

2.1.4 General Description

2.1.4.1 The Vulcan NRTE carries out evaluation of the safety, reliability and performance of the Naval Reactor Plant and components of that plant, prior to introduction in Royal Navy Submarines. The site is comprised of a number of facilities, the majority of which do not hold radioactive material. The site is located on the north coast of Scotland approximately 15km from the town of Thurso. The site lies approximately 20m above sea level. The meteorological conditions are typical for the north coast of Scotland with a prevailing north-westerly wind and above average UK rainfall.

2.1.4.2 The local authority responsible for the area surrounding the Vulcan NRTE is Highland Council.

2.2 SITE ACTIVITIES

2.2.1 The facilities within the Vulcan NRTE site containing more than the quantity of radioactive material specified in Schedule 2 of the Regulations are detailed in Table 1. A HIRE has been conducted for each facility. A brief description of each facility is given and the containment arrangements for the radioactive material are detailed.

Table 1 : Facilities with a Hazard Identification and Risk Evaluation

Facility	Description	Containment
Shore Test Facility (STF)	Pressurised Water Reactor (PWR). Fission of uranium, contained in fuel elements, takes place in the reactor core. The resulting fission products, including radioactive isotopes of iodine, caesium and krypton, are contained within the fuel cladding. The heat generated by the fission process is removed from the core by water contained in a sealed circuit. This water is pumped through steam generators where the heat is transferred to a separate, secondary circuit.	The fuel elements are contained within a high integrity cladding, designed to prevent the release of radioactive fission products. Should the cladding fail, the primary coolant system, a pressurised, sealed circuit, would contain the fission products. Beyond the primary coolant system, a third containment boundary exists which is designed and constructed to meet the rise in pressure that could result from a failure of the primary coolant system. The entire facility is housed in a dedicated building.
STF Pond	Underwater storage for used fuel removed from the core of the STF during the plant overhaul.	Fuel clad integrity remains high. Should any release of fission products occur, the storage water would limit dispersal. The pond is contained within a dedicated concrete structure within a second outer building.
Dounreay Submarine Prototype 1 (DSMP1) Pond	Underwater storage for used fuel removed from the core of the DSMP1 reactor during its decommissioning.	Fuel clad integrity remains high. Should any release of fission products occur, the storage water would limit dispersion. The pond is contained within a dedicated concrete structure within a second outer building.
Decontamination Waste Treatment Facility (DWTF)	DWTF was used to decontaminate the STF Facility and is under a care and maintenance regime. The facility was designed for and contains active resin which was generated during the decontamination process.	All resins within the facility are contained in specially designed Resin Catch Tanks which are held in a bunded, shielded area of the facility. This facility is contained within a dedicated concrete building.

2.3 SAFETY ASSESSMENT PROCESS

2.3.1 The Design Authority for the Naval PWR, Rolls-Royce, is charged with producing a Facility Safety Case (FSC) for the Shore Test Facility. This safety case is based on deterministic and probabilistic safety assessment of the PWR and its associated systems. The FSC is independently peer reviewed and then undergoes Independent Nuclear Safety Assessment (INSA) by Serco Assurance (formerly part of AEA Technology). They produce a Nuclear Safety Clearance Document which is formally reviewed by the Chairman of the Naval Nuclear Regulatory Panel supported by Suitably qualified and Experienced independent experts.

When satisfied, the Chairman of the Naval Nuclear Regulatory Panel (CNNRP) issues a Safety Clearance Letter to MoD's Central Plant Control Authority who authorise the operation of the Shore Test Facility.

2.3.2 Authorisation of the Vulcan Naval Reactor Test Establishment

The Vulcan NRTE, as a Ministry of Defence establishment, is not subject to licensing under the Nuclear Installations Act. However, the MoD operates a parallel nuclear regulatory function through an internal regulator, the Naval Nuclear Regulatory Panel, which utilises a similar system that mirrors the Nuclear Installations Inspectorate licensing approach. It permits nuclear activities to take place on the site and authorises operations at the Vulcan NRTE. This is known as Site Authorisation. The Naval Superintendent is appointed as the Site Authorisee. The Site's Authorisation encompasses the Site Safety Management Arrangements and the authority to operate all facilities. Each Facility is supported by a Facility Safety Case (FSC) demonstrating compliance with MoD Safety Principles and Safety Criteria (SPSC). The MoD SPSC encompass all statutory requirements.

2.3.3 Safety Controls and Engineering Design

The containment arrangements for each facility are detailed in Table 1. In addition, there are engineered and procedural safeguards to prevent and mitigate any accident scenario. All equipment is robustly designed, constructed to a high specification and undergoes through examination, testing and regular, planned, routine, scheduled maintenance. Operation of all equipment is conducted according to rigorous operating procedures, by suitably qualified and experienced staff. The safety justifications for the equipment, its operation and any changes to these are subject to internal and external review.

2.3.4 Site Safety Management, Staffing and Training

The safety responsibilities of all personnel are defined in Site Safety Management Documentation. All personnel at Vulcan NRTE are suitably qualified and experienced for the work that they are expected to perform. A Nuclear Training Requirements Plan specifies that requisite qualifications and experience for each role. A continuous process of audit and review is used to ensure that procedures remain current and effective. Minimum manning levels have been assessed and are documented in Site Safety Management Documentation. The Site Safety Management Systems ensure that there are adequate staff and resources available at all times to enable safe plant operation and provide a robust emergency response capability.

2.4 HAZARD IDENTIFICATION AND RISK EVALUATION

2.4.1 Introduction

The Radiation (Emergency Preparedness and Public Information) Regulations define the terms “radiation accident” and “radiation emergency”. A radiation accident requires immediate action to prevent or reduce the exposure to ionising radiation of employees or other persons; a radiation emergency is an event that is likely to result in a member of the public being exposed to ionising radiation, as defined in the Regulations. Hence a radiation accident may, but will not necessarily, result in a radiation emergency.

2.4.2 Shore Test Facility

The HIRE for the Shore Test Facility has identified a number of scenarios with an extremely low probability of leading to an off-site release of radioactive material. A radiation emergency, as defined within the Regulations, can result from this facility, although it is an exceptionally unlikely event.

A range of potential accident scenarios have been analysed, the majority of which would not result in a release of radioactivity by virtue of the engineering and procedural safeguards described previously. The analysis considered those factors which could lead to a loss of cooling capability, as well as those which could give rise to an unintended self-sustaining nuclear chain reaction or the loss of control of an intended self-sustaining chain reaction. For a significant release to occur it is necessary for there to be a plant failure followed by breach of the multiple containment barriers between the radioactive fission products contained within the fuel and the outside environment.

These barriers include the high integrity fuel cladding, the primary coolant sealed circuit, the containment structure (designed and constructed to withstand the rise in pressure that could result from a failure of the primary system).

Accidental releases from the site could occur over periods varying from a few minutes to several hours, depending on the circumstances and the level of damage.

In order to develop an accident response strategy, the analysis has considered the probability of each accident sequence occurring and the consequences of the fission product release resulting from that sequence.

A two stranded approach has then been used to determine an appropriate strategy: an analysis of the probability and magnitude of any radiation exposure given that a radiation accident has been declared; and an analysis of the optimum countermeasure strategy for protection of individuals from any potential radiation exposure. Both analyses have considered all of the identified accident sequences. The appropriateness of introducing countermeasures has been determined on the basis of published advice from the National Radiological Protection Board. This multi-faceted approach has resulted in a recommended accident response strategy based on a range of accident scenarios and analyses.

2.5 IMPLICATIONS FOR RADIATION EMERGENCIES

In the improbable event of a radiation emergency, the likely exposures to those members of the public within the zone extending 2km from the location of the plant could exceed 5 mSv. It is very unlikely that exposures in excess of 5 mSv could be received beyond this zone, however a small number of low probability scenarios have been identified with more significant consequences. In deriving the recommended countermeasures strategy, due account has been taken of all identified accident scenarios, however improbable.

The recommended response strategy to a radiation emergency would be implemented in two stages. Immediate countermeasures are set out within the Emergency documentation, affecting only those personnel within the 550m automatic countermeasure zone. Implementation of the recommended off-site response would affect individuals in the detailed emergency planning zone out to approximately 2km from the Shore Test Facility. Both the on-site and off-site plans would be implemented as precautionary measures prior to the detection of any release of radioactivity

Controls may be also applied to locally produced food under instructions from the Food Standards Agency, based on food intervention levels required by EC Regulations.

2.6 CONCLUSIONS

A hazard identification and risk evaluation has been conducted for each of the facilities at Vulcan NRTE holding radioactive materials, as required by the Regulations. These assessments have indicated that one facility on the site has the potential to lead to a radiation emergency, albeit with an extremely low probability.

The probabilities and consequences of the full range of potential accidents have been analysed and a response strategy developed to address them. To cope with the unlikely event of a radiation emergency, Vulcan NRTE has a Site Emergency Plan in place detailing the on-site response. The appropriateness of implementing countermeasures off-site has been assessed in the light of national and international legislation and guidance, and a precautionary strategy has been recommended to a distance of approximately 2km from the site. The recommended detailed emergency planning zone is shown on the map at Page 9.

Emergency Planning for the Vulcan NRTE is addressed by multi-agency meetings. This enables the co-ordinated response strategy to be regularly reviewed and updated as required.

Vulcan NRTE has in place engineered and procedural safeguards to prevent a radiation accident from occurring, and to limit the consequences of any accident which could occur. The safety management systems at Vulcan NRTE are robust, appropriate and regularly reviewed. Personnel are suitably qualified and experienced to control the radioactive materials held on the site. A programme of internal and external reviews and audits is in place to ensure that safety standards, management and implementation remain appropriate and robust.

UKAEA - Dounreay
DOUNREAY SITE PLAN (INCLUDING NTRE VULCAN)
UKAEA
TRUE NORTH
EAST
WEST
SOUTH
DFR
PFR
SHAFT
SCALE:

SECTION 3 : GENERAL INFORMATION

3.1 Introduction

Vulcan Naval Reactor Test Establishment (NRTE) is a Ministry of Defence (MoD) establishment, housing a prototype nuclear propulsion plant of the type operated by the Royal Navy in nuclear submarines.

Vulcan lies on the north coast of Scotland in the county of Caithness, just to the west of the United Kingdom Atomic Energy Authority (UKAEA) site at Dounreay.

Grid References:	Digital	:	2977 9667
	OS	:	NC 977 667

The MoD lease the eight-hectare site from the UKAEA, who provide many supporting services, such as mains electricity and water. The site has two main buildings: the large building (green) to the east is known as 'Dounreay Submarine Prototype 1'; and the large building (yellow) to the west is called the 'Shore Test Facility' (STF). The smaller buildings contain staff offices and stores (see photograph on front cover).

The Vulcan NRTE site is accessed from the A836 Thurso to Bettyhill road, which passes within one kilometre of the main gate. The site is bordered by a high security fence and access to the site is controlled at the main front gate. Patrol and security of the site is carried out by Rolls Royce Security Staff.

The nearest centres of population to Vulcan NRTE are the village of Old Reay at 2 km and the villages of Reay at 3 kilometres and Shebster at 5 kilometres (See Maps at Pages 79 and 80).

3.2 Administration

The Head of Establishment and the Officer authorised to sanction plant operations on site by the MoD Regulator is the Naval Superintendent Vulcan (NSV), who is the senior Royal Navy Officer and is of Commander rank. The NSV has a small naval staff who oversee all site operations. Control is exerted by the Ministry who have involvement in all decision making processes involving plant operations.

Rolls-Royce are contracted to operate and maintain the nuclear reactor plant on behalf of the MoD and employ some 260 people locally

3.3 Background

For more than forty years of operation, Vulcan has been a cornerstone of the Royal Navy nuclear propulsion programme. The site has adopted many different roles to support the submarine fleet. Vulcan is, or has been, all of the following**:**

- A test bed for evolving reactor technology.
- A lead plant for new seagoing plant and equipment.
- A training facility for nuclear submarine operators.
- A test rig for investigation of loss of coolant conditions.
- A refurbishment and testing facility for submarine reactor cooling pumps.

Vulcan provides a major contribution to the nuclear safety, availability, reliability and operability of the Royal Navy submarine fleet. The operation of a prototype reactor at Vulcan is an essential part of the naval nuclear programme.

SECTION 4 : ACCIDENTS AND COUNTERMEASURE ZONES

4.1 Definition of Reactor Accident

A nuclear reactor accident is defined as, '**An unexpected event that is likely to lead to, or has resulted in, a release of fission products external to the fuel'.**

The only reactor accident that can result in a hazard to personnel outside the site boundary is one which leads to a release of the fission products normally retained within the reactor fuel.

It is impossible for an incident in a pressurised water reactor to result in a nuclear explosion.

4.2 Categories of Reactor Accident

Nuclear reactor accidents are sub-divided by the Ministry of Defence into three categories:

Category 1 An event which is likely to lead to, or has resulted in, the release of fission products from the fuel. In this situation, no radioactive material has been released to the environment.

Category 2 An event that has led to the release of fission products from the fuel, but not beyond the Shore Test Facility (STF). This status confirms that there is now a radiation hazard on-site but no release of radioactive material to the environment

Category 3 An event which has led to the release of fission products from the fuel and into the environment beyond the STF.

4.3 Fuel Handling Accident

A fuel handling accident could occur during reactor de-fuel, reactor refuel, fuel movement, fuel storage in a pond, or during post irradiation examination of used fuel in a pond.

The safety cases for the above processes demonstrate that a criticality accident is not credible. The only credible accidents are associated with a loss of shielding and possible fuel fragmentation.

There would, therefore, be no significant release of radioactive materials off-site. The hazard associated with a fuel handling accident would be enhanced gamma radiation levels. It is not envisaged that countermeasures, affecting the general public would be necessary as a result of a fuel handling accident.

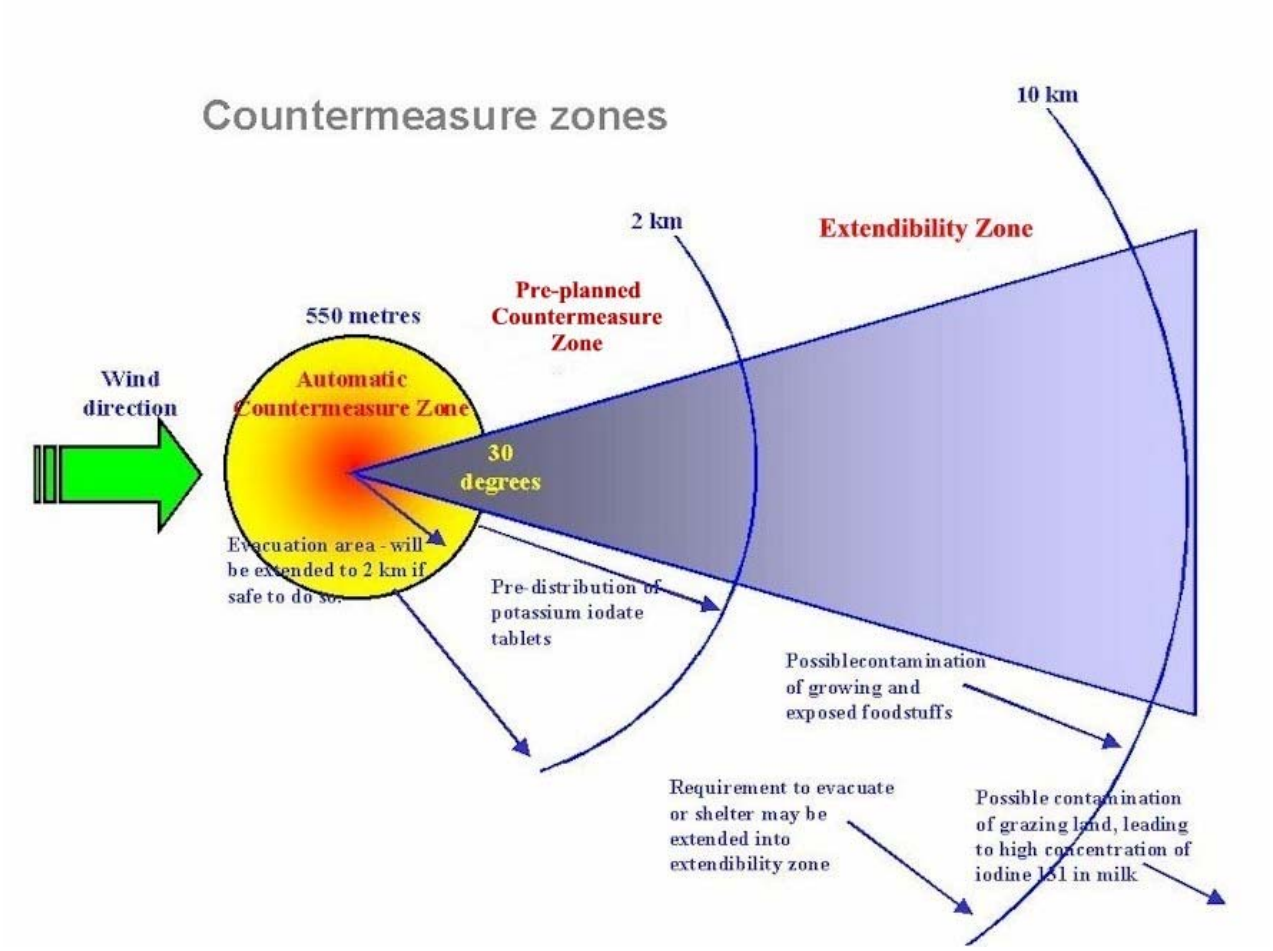
4.4 Countermeasure Zones

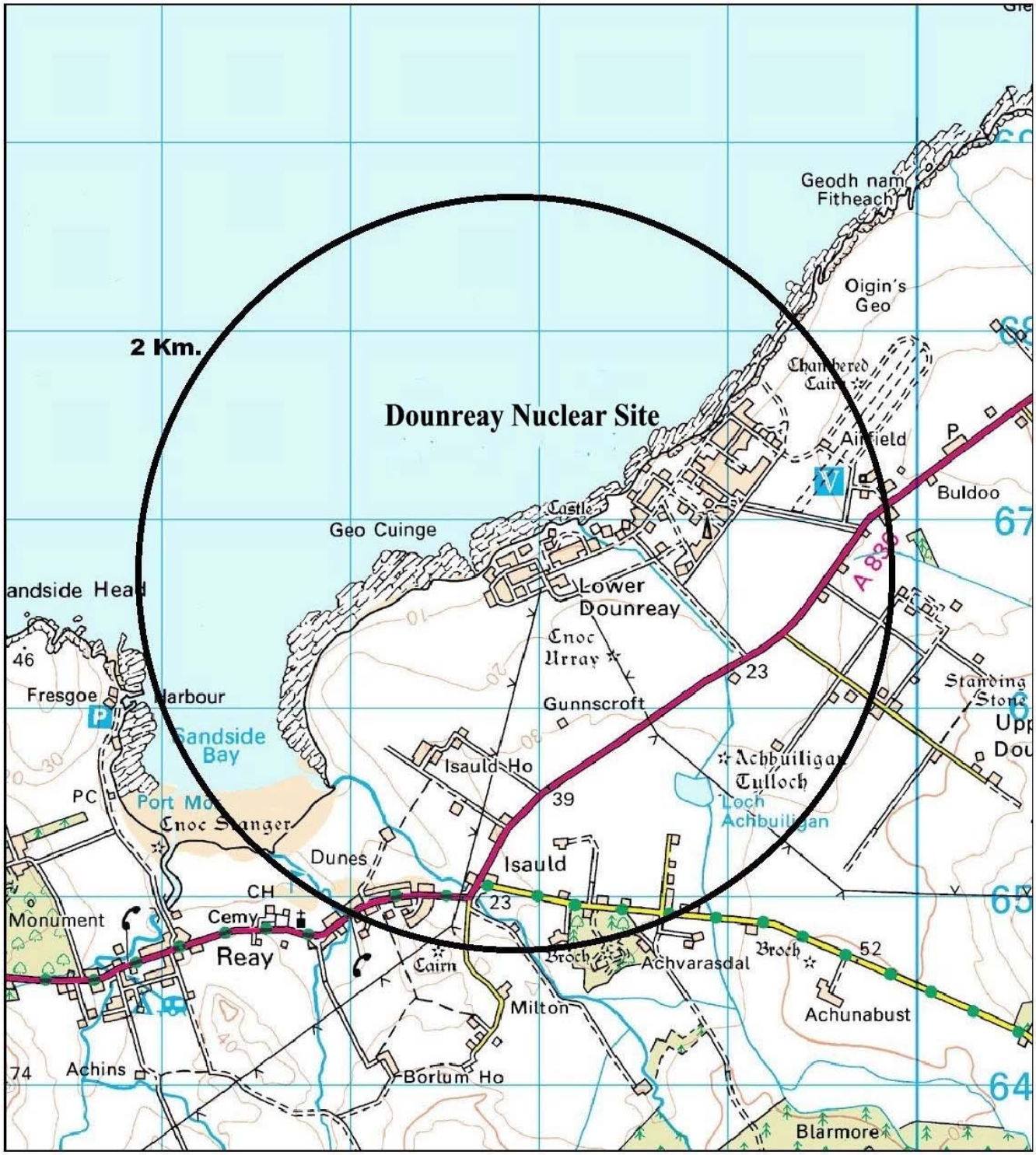
Vulcan NRTE has identified three countermeasure zones around the Shore Test Facility (STF) building.

An automatic countermeasures zone This is a circular zone with a radius of 550 metres centred on the Shore Test Facility (STF) the building in which the reactor is housed. In this zone countermeasures are taken automatically as soon as a reactor accident occurs. All Vulcan personnel within this zone have been given instructions on what they should do in the event of an accident. If these instructions are followed, no-one within the Automatic Countermeasures Zone will exceed any of the upper level emergency reference levels of radiation dose, and the majority will not exceed any of the lower ones. Within the Automatic Countermeasure Zone all non-essential individuals are either evacuated as soon as the accident occurs, by pre-planned routes, or take shelter prior to subsequent planned evacuation. All are given stable iodine as soon as possible, and are asked to record where they were and what they did when they heard the accident alarm. A small number of key personnel may remain in or re-enter this zone. Such personnel must take stable iodine and wear protective clothing, if necessary. Any individual within this area (or re-entering) must have specific authorisation.

A pre-planned countermeasures zone extending to 2km around the STF. Research indicates that there are clear benefits in recommending countermeasures beyond the automatic countermeasure zone into the pre-planned countermeasure zone, on declaration of a category 2 accident. This would give the opportunity to implement countermeasures before there is a confirmed off-site hazard.

Extendibility zone out to 10 km around the STF. Countermeasures within this zone are not likely to be of an immediate concern, but are more likely to be implemented as the incident develops. Planning within this zone should establish broad principles and countermeasures, such as advice in relation to food stuffs, including milk products.





The Highland Council
Comhairle na Gaidhealtachd
SERVING The Highland Community

Pre-planned Countermeasure Zone

(REPPIR)

Countermeasures around Vulcan NRTE include:

- Evacuation
- Sheltering
- Stable Iodine Tablets (SITs) also known as Potassium Iodate Tablets (PITs)
- Control of foodstuffs and water supplies

4.5 Evacuation

If any category of alert is received from Vulcan NRTE, early evacuation around the site is the preferred option of both the Northern Constabulary and The Highland Council. Evacuation procedures would be commenced following advice from and discussion with the Vulcan Incident Commander at the Dounreay Emergency Control Centre (DECC). Evacuation protects the general public predominantly against radiation from fission products on the ground. Any sectors requiring to be evacuated are unlikely to ever extend beyond 2 km, and consequently numbers to evacuate would be small.

Evacuation is a Police responsibility and the decision to proceed with this rests with the Chief Constable/Overall Incident Commander, on the basis of technical and health advice received.

Members of the public within the area to be evacuated would have the necessary information relayed to them by the following means**:**

- Broadcast messages being passed by local television and radio networks – Grampian TV, BBC TV (Scotland), Moray Firth Radio 97.4 FM, 102.5 VHF, 1107 KHZ and BBC Radio Scotland 92.4 – 94.7 VHF, 810 MW.

Note : Responding agencies will only deploy personnel into areas to be evacuated if it is safe to do so.

Arrangements are in place, in association with The Highland Council, to provide transport for any members of the public who require it. It is envisaged that the vast majority would self evacuate using their own vehicles.

Members of the public being evacuated would be directed to one of the designated screening units for reassurance monitoring, and, if necessary, for decontamination. Sites for screening units and associated reception centres have been identified at the following places:

The Primary Radiation Screening Unit is:

Halkirk – Sports Pavilion

Other Radiation Screening Units may subsequently be set-up at:

Dunnet Bay - Caravan Site

Bettyhill – Swimming Pool

Brora – Fascally Sports Pavilion

The Primary Reception Centre is:

Halkirk – Ross Institute

If additional RSU's are set up then associated Reception Centres will be set-up at:

Dunnet – Village Hall

Bettyhill – Community Hall

Brora – Community Centre

4.6 Sheltering

When sheltering is considered appropriate, advice would be given to stay indoors with doors and windows shut and all ventilation/air conditioning shut off. This advice would be relayed to the general public by employing the following means**:**

- Broadcast messages being passed by local television and radio networks – Grampian TV, BBC TV (Scotland), Moray Firth Radio 97.4 FM, 102.5 VHF, 1107 KHZ and BBC Radio Scotland 92.4 – 94.7 VHF, 810 MW.

4.7 Stable Iodine Tablets (Potassium Iodate Tablets)

If stable non-radioactive iodine, in the form of Stable Iodine Tablets (SITs) also known as Potassium Iodate Tablets (PITs), is taken before or within a few hours of the inhalation of radioactive iodine, the vast excess of stable iodine from the tablet will substantially reduce the radiation dose to the thyroid gland.

Stable Iodine Tablets (SITs) also known as Potassium Iodate Tablets (PITs) have been pre-distributed to all householders within and just beyond the pre-planned countermeasure zone. This is up to 2.5 km from the Vulcan site (see map on page 17). There are also stocks of tablets held in the Achvarasdal Old Peoples' Home, the primary school at Old Reay (approximately 50 children), Reay Golf Club, Caithness General Hospital and the Dounreay Exhibition Centre.

Advice on the appropriate dose, and methods of administration, have been issued by NHS Highland and accompany the pre-distributed tablets. (See Appendix 5(A) Page 87)

4.8 Control of Foodstuffs and Water Supplies

Contamination of exposed and growing foodstuffs may occur downwind. Though this is not likely to form an acute hazard during the first few hours, there could be an ingestion hazard, for example from leafy vegetables, and countermeasures may extend over a wider area for a longer time than evacuation or sheltering. Similarly, pasture may be contaminated downwind and efficient grazers such as cows and goats can graze a considerable area each day. Some radioisotopes (such as radioiodine) concentrate in milk so there must be arrangements to prevent the consumption of milk which is known to be, or likely to be, contaminated to a higher than acceptable level. The Food Standards Agency will assess any ingestion hazards and advise on necessary countermeasures and arrangements to protect the safety of the food chain.

Water Supplies: Mains water supplies are most unlikely to be affected in any way. To reassure the public, however, sampling of main services and open reservoir water supplies will be arranged by Scottish Water. In some areas, however, water is drawn from private wells, natural springs or running water, and, therefore, there may be a risk of water being contaminated. For this reason, a general ban on the use of water in the area may have to be considered until sampling has been carried out. The responsibility for imposing a ban lies with the Director of Public Health.

4.9 Radiological Protection

Health Hazard: Everyone is exposed continuously to radiation from many sources. The average annual dose in the United Kingdom from radiation of natural and artificial origin is about 2150 microsieverts, approximately 87% of which comes from natural sources, 13% from artificial sources and 0.1% from controlled releases from the nuclear industry.

The principal harmful effect of radiation exposure is to increase the possibility of cancer in later years, but very high radiation doses can lead to short term or immediate health effects.

Radiation dose is measured in a unit called the sievert (Sv). The sievert is a large unit, and for personal monitoring purposes it can be divided into millisieverts (mSv), which is 1/1,000th of a Sv and microsievert (µSv), which is 1/1,000,000th of a Sv.

Radiation and Protection Standards Radiological protection in the UK is based on recommendations laid down by the International Commission on Radiological Protection. These recommendations have been endorsed by the National Radiological Protection Board, and form the basis for current legislation in this country. For the purpose of radiological protection, people are divided into two categories:

- 'radiation workers' : adults who are exposed to radiation in their work; and
- 'others': individuals who are not engaged in radioactive work and children, etc.

The dose limit to the whole body for 'radiation workers' exposed to radiation is 20 milliesieverts per year or 0.020 sieverts. This level also applies to some emergency personnel, such as the Police and Ambulance Officers detailed to respond to an emergency. For 'others' the dose limit is 1 millisievert per year or 0.001 sievert. (See Appendix 5 (B) Page 88).

Methods of Protection

Distance and Exposure Time: The intensity of radiation from a radioactive source decreases with increasing distance. A simple rule is that by doubling the distance from the source the radiation level is reduced to one quarter and by trebling the distance the radiation level is reduced to one ninth. Similarly, the shorter the time the person is exposed to a source of radiation the smaller will be the dose received.

Protective Clothing: In order to provide protection to personnel responding to an off-site incident involving a radiological hazard, adequate clothing will be required. This will include, an oversuit with integral hood, industrial gloves and wellington boots, which will provide body surface protection for the wearer.

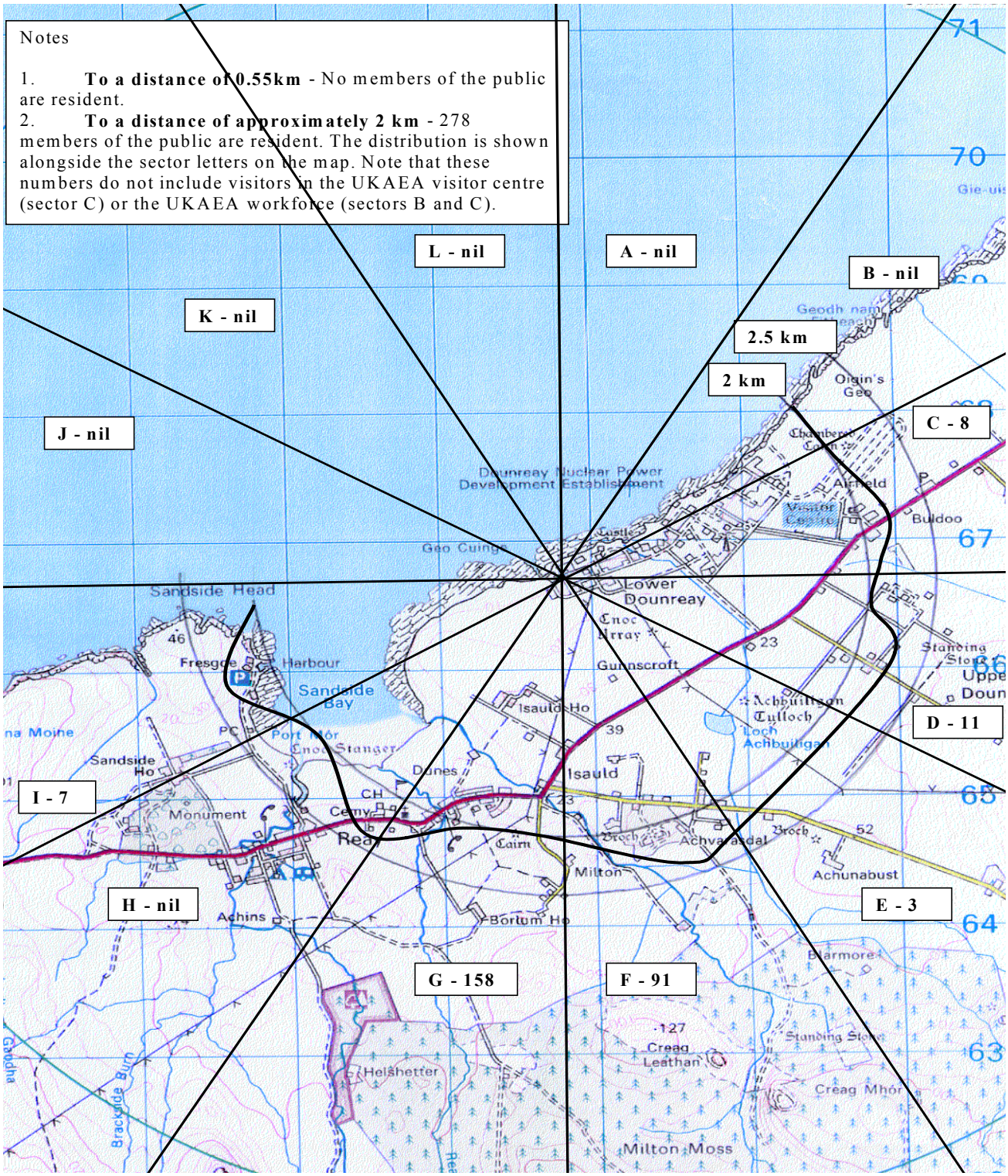
Respirators: The standard equipment is a face mask respirator, together with individual instructions for use, which, if fitted correctly, will provide protection against the inhalation of radioactive particles**.**

Advice, Monitoring and Use of Equipment

Personnel from all the responding organisations will only enter a contaminated area in urgent or life threatening situations. Before entering any such area, advice will be sought from the Vulcan Incident Officer at the Dounreay Emergency Control Centre (DECC) and the monitoring team, as to what protective clothing should be worn and which countermeasures should be implemented. This equipment will be provided by UKAEA/Vulcan.

Ideally, no personnel from any organisation should enter the contaminated area unless accompanied by a member of one of the monitoring teams. Personnel leaving the contaminated area will be advised as to which radiation screening unit they should attend, along with his/her vehicle.

Cordon points will be well outwith any contaminated area or potentially contaminated area, and therefore Police Officers on duty at these points will **not** require to wear protective clothing as a matter of routine.



Tablet Distribution Area
(REPPIR)

SECTION 5 : STATES OF ALERT AND ACTIVATION OF EMERGENCY ARRANGEMENTS

5.1 INTRODUCTION

5.1.1 The design, manufacture and operation of reactor plants are extremely carefully supervised and controlled to reduce the risk of any form of accident to the absolute minimum. However, should such an accident occur, the effect would, at worst, be a release over a 24-hour period of a radioactive cloud of gaseous and volatile fission products, the most significant of which is radioactive iodine. It is emphasised that it is **impossible** for a reactor accident to result in an atomic bomb type explosion

5.2 DEFINITION

5.2.1 An emergency will be declared on the occurrence of any accident causing, or likely to cause, the release and spread of radioactive material in such a way that there would be interference with the normal activities of the public.

5.3 EMERGENCY CATEGORIES

5.3.1 There are three emergency categories:

(a) **CATEGORY 1** – An event which is likely to lead to, or has resulted in, the release of fission products from the fuel within the STF. At this time organisations involved will come to a state of readiness.

(b) **CATEGORY 2** – An event which has led to a radiation hazard within the STF as a result of the release of fissions products from the fuel.

(a) **CATEGORY 3** – An event which has led to the release of fission products from the fuel to the environment outside the pressure hull of the STF.

NOTE: Under highly unlikely circumstances a Category 2 or Category 3 may be declared without Category 1 being declared beforehand.

SECTION 6 : ENTRY/RE-ENTRY TO CONTROLLED AREAS

6.1 PROCEDURES

6.1.1 It is essential that all personnel requiring access to the following areas are managed correctly and are not allowed unauthorized and uncontrolled access through any cordon: See Map Page 22.

6.1.2 The following authorities or groups of personnel could be expected to require access in the timescales as indicated below. It is emphasised that although personnel may require access through a cordon for official and authorised duties they may not be required to approach or enter a hazardous area. Nevertheless, full management and control procedures are required for all access through a cordon:

a. **Immediate Accident Emergency Response**

(1) Emergency Monitoring Team.
(2) Police.
(3) Fire Service.
(4) Ambulance.
(5) Medical Staff.
(6) Support and technical staff.

b. **Intermediate Response Phase (Hours to Days)**

(1) Emergency Monitoring Teams.
(2) Police.
(3) Fire Service.
(4) Support and technical staff.
(5) Relevant Civil Authorities.

c. **Recovery Phase**

(1) Radiation Monitoring Teams (All authorities).
(2) Police.
(3) Support and technical staff.
(4) Relevant civil authorities.

6.1.3 The following Access Control Procedures are required to be implemented:

a. **Emergency Rapid Access**

This is required for essential emergency procedures only. eg. Firefighting, Saving of life, Radiation Monitoring, Implementation of immediate Automatic Countermeasures.

(1) Ensure rapid access.
(2) Personnel will be briefed at the Forward Control Point on the location of the hazardous areas (if present), the designated safe route INTO and OUT of the area and safety requirements whilst in the area. Confirmation of all requirements may be obtained from the Health Physicist.

(3) Personnel are to be issued with Thermoluminescent Dosemeter (TLD badge).
(4) Personnel are to be issued with a Personal Electronic Dosemeter (PED).
(5) Personnel are to be issued with Personal Respiratory Equipment face mask.
(6) Personnel will require to wear suitable protective clothing.
(7) Personnel are to be instructed to maintain communications with the required control.
(8) The Tactical control are to be informed of any access commencing.
(9) The time of ENTRY and EXIT of all personnel to and from the area is to be recorded at the Forward Control Point.

NOTE: The Fire Service, Monitoring Teams and Ambulance Crew may attend the access cordon already in possession of pre-issued equipment and briefing. In this case ensure a rapid safety briefing is issued and allow rapid entry to the area whilst recording all required details.

b. **All subsequent authorised access.**

(1) All entries are to be authorised by the Senior Police Officer at the Forward Control Point in liaison with the Health Physics Advisor.
(2) The PERMIT TO ENTER CONTROL ZONE Authorisation Form is to be completed and signed at all sections before access is authorised. The Radiation Safety information is to be obtained from the MoD Health Physicist. This authorisation form is required to be signed by the MoD Health Physicist, the Senior Police Officer at the Forward Control Point and the individual person requiring access.
(3) Personnel are to be briefed at the Forward Control Point on the location of the hazardous areas (if present), the designated safe route INTO and OUT of the area and all safety requirements whilst in the area.
(4) Personnel are to be issued with Thermoluminescent Dosemeter (TLD badge).
(5) Personnel are to be issued with a Personal Electronic Dosemeter (PED).
(6) Personnel are to be issued with Personal Respiratory Equipment face mask.
(7) Personnel are to be instructed to maintain communications with the required control.
(8) The Tactical control are to be informed of the access commencing.
(9) The time of ENTRY and EXIT of all personnel to and from the areas to be recorded at the Forward Control Point.

6.2 RADIATION DOSES - LIMITS

6.2.1 The Health Protection Agency – Radiation Protection Division recommends that for each countermeasure an Action Level is selected which is appropriate to the particular site. For each countermeasure a lower and an upper Emergency Reference Level (ERL) have been specified. Doses which have already been received through normal occupational sources, are not relevant to these considerations.

6.2.2 All authorities involved in a response to a nuclear accident may have pre-determined radiation dose limits stricter than those recommended in Section 4 and specific radiological protection requirements. The specific requirement of each authority is to be implemented. (See Appendix 5 (B) Page 88)

6.3 RECORDS TO BE KEPT

Comprehensive records are to be kept by all authorities involved in a nuclear accident, in order that the necessary information may be available for a subsequent inquiry to the cause and effects. The records are also needed to assist in dealing with any claims which may arise in connection with loss, damage or injury attributable to the accident. In particular, the following information is required.

(a) Times of reports or orders being given or received.
(b) Times when other authorities are informed of occurrences.
(c) Details of persons exposed to any hazard and doses received, if possible, in addition to their movements within affected areas.
(d) Decisions taken and the information on which these decisions were based.
(e) Weather conditions.
(f) Information on the causes and effects.
(g) Authorisation for access to controlled area.
(h) Details of personnel entering controlled area.

Authorities are requested to forward copies of these records to the Northern Constabulary Force Headquarters as soon as possible after an accident.

Road Blocks / Forward Control / Rendezvous Point

(REPPIR)

(22)

SECTION 7 : COMMAND AND CONTROL

Should any of the 3 levels of command and control be implemented, their locations will be as follows:

7.1 Operational Level : Vulcan Emergency Control Centre (VECC)

The operational level of command and control will be set up at the Vulcan Emergency Control Centre (VECC), located within Vulcan NRTE. It is not normal practice to send Liaison Officers from other agencies to the VECC. These agencies will be represented at the tactical level of command at the Site Emergency Control Centre and the Incident Control at Wick Police Station.

7.2 Tactical Level : UKAEA's Dounreay Emergency Control Centre (DECC) and Incident Control Post at Wick Police Station

The tactical level of command for an incident at Vulcan NRTE, will be established at the UKAEA Dounreay Emergency Control Centre (DECC) and at Wick Police Station.

The DECC is a dedicated on-site facility which would be established in a very short timescale, typically 10 to 15 minutes, to provide a co-ordination centre for the deployment of site based emergency teams, the initial co-ordination of district survey teams and the provision of early advice on the need for urgent countermeasures via the Police.

The DECC is located within the UKAEA site. The centre has its own protected environment, together with monitoring equipment to provide detailed information on radiological conditions within the site and the immediate vicinity. It can also provide meteorological information relevant to the area. The DECC is under the command of the Site Emergency Controller (Vulcan Incident Commander).

All readings from on-site monitoring and from the off-site monitoring teams are collated at the Emergency Radiological Incident Centre (ERIC), before it is passed directly to the DECC. ERIC is also on the UKAEA site. ERIC not only assesses the incoming raw data, but also passes on countermeasures advice.

The Police are the co-ordinating authority in relation to all matters regarding the safety of the public off-site, and it is important that the Police presence at the DECC makes it clear that they will require continuous updates in relation to all matters regarding public safety.

An Incident Control Post will be set up within Wick Police Station. This will be the tactical level of command for Northern Constabulary. Other agencies, including The Highland Council and Scottish Water, will attend at the Police Incident Control Post in Wick. The Police Incident Officer will be based there and will receive updates from the Police Liaison Officer at the DECC.

7.3 Strategic Level : Strategic Co-ordinating Centre (SCC) Inverness

The Strategic Co-ordinating Centre (SCC) will be located at Police Headquarters, Old Perth Road, Inverness. The main functions of the SCC are:

- To manage the strategic level of response to the incident.
- To relieve the load on the affected site, by taking responsibility for all activities not directly concerned with rectifying the situation at the site.
- To provide a central liaison and information exchange point for relevant organisations.
- To ensure that an adequate flow of information and specialist technical advice on the incident is provided to the emergency services, local and central government and to the media and public.
- To provide technical assistance to the site and co-ordinate off-site radiological monitoring activities.

The SCC would be set up as quickly as possible after a Category 1 incident has been declared. All responding organisations should ensure that within their initial actions representatives from their organisation attend the SCC at Police Headquarters, Inverness, as soon as possible. The representatives should be of appropriate standing to make strategic decisions. They would normally bring their Emergency Planning Officers, or equivalent, as advisers.

All services and agencies will initially receive technical advice from the Vulcan Incident Commander (Naval Superintendent Vulcan), via the tactical level of command at the Dounreay Emergency Control Centre (DECC). Once the Nuclear Accident Back-Up Support Team (NABUST) from Faslane arrives at the Strategic Co-ordinating Centre, Inverness, advice to all the agencies will be through the Military Co-ordinating Authority (MCA).

Agencies Located at the Strategic Co-ordinating Centre (SCC)

The following people and agencies would be located within the SCC at Inverness. A summary of their responsibilities are included.

Military Co-ordinating Authority: The Military Co-ordinating Authority (MCA) will be in overall administrative control of all Ministry of Defence departments and agencies during any post accident procedures, following an accident at Vulcan NRTE. The MCA will provide authoritative advice to Northern Constabulary and other authorities, particularly in matters concerning the off-site response. During the early response phase to an accident at Vulcan NRTE, advice will be provided by the Naval Superintendent Vulcan, or his deputy, as Vulcan Incident Commander in the DECC until staff from the Naval Base Clyde Nuclear Accident Back Up Support Team (NABUST) assemble at the Strategic Co-ordinating Centre (SCC), Police Headquarters, Inverness. Once the NABUST have their designated staff in place at Police Headquarters, Inverness, the responsibility for provision of advice will transfer from the Vulcan Incident Commander to the MCA. This transfer of responsibility for the provision of advice is to be agreed by the SCC Police Chairman.

Scottish Executive Senior Government Liaison Representative: The role of the government liaison representative will be to provide a direct link with Ministers and government departments in Edinburgh. This person will normally be a senior departmental officer. This government liaison representative will also provide a direct link with the Scottish Executive Emergency Room, which will be convened in Edinburgh. The Scottish Executive Environment and Rural Affairs Department will be represented at the SCC and has extensive powers to control the production and supply of contaminated, or potentially contaminated, food, and can invoke restrictions on the movement of foodstuffs, milk and livestock.

United Kingdom Atomic Energy Authority (UKAEA): The United Kingdom Atomic Energy Authority will provide support to the MCA including health physics data and other information.

Health Protection Agency (HPA) – Radiation Protection Division: The Radiation Protection Division will advise government departments and other organisations on radiological protection and assessment of radiological hazards. Officers from the Radiation Protection Division will liaise with their emergency control room, passing them data for predicting the outcome of the release and its consequences. The Radiation Protection Division will be responsible for co-ordinating the long-term monitoring and analysis in the wider area beyond the emergency planning zone, and they will contribute to long term advice on measures to protect the public.

The Food Standards Agency: The Food Standards Agency (FSA) is a Non-Ministerial Government Department; a UK-wide body which in Scotland is represented by FSA Scotland, as food safety is a devolved responsibility. The Agency's responsibilities include advising on and protecting all aspects of food safety. The Agency, acting in conjunction with SEERAD and Local Authorities can exercise powers to control the production and supply of contaminated food, and to restrict the movement of foodstuffs, crops and livestock.

Nuclear Installations Inspectorate: Under the Health and Safety at Work Act 1974, and supporting legislation, the Health and Safety Executive's Nuclear Installations Inspectorate is responsible for ensuring that nuclear operators make appropriate arrangements to respond to a nuclear emergency.

Northern Constabulary: Northern Constabulary will be responsible for the co-ordination of the emergency services and other organisations responding to any matters with off-site implications during the emergency phase of an incident at Vulcan NRTE.

Highland and Islands Fire Brigade: Highland and Islands Fire Brigade will have responsibility for all on-site fire fighting and rescue.

Scottish Ambulance Service: Scottish Ambulance Service will be responsible for the initial treatment for off-site casualties and, thereafter, transportation of casualties to the designated hospitals. Scottish Ambulance Service will assist, if requested Local Authority in the transportation of the disabled/elderly from an affected area in the event of an evacuation.

NHS Highland: NHS Highland are responsible for making arrangements with designated hospitals for the treatment of casualties, both irradiated and non irradiated, and the provision of radiation screening facilities and advice to the public. The Director of Public Health is also responsible for the issue of and advice to take Stable Iodine Tablets (SIT's) (also known as Potassium Iodate Tablets (PITs)).

The Highland Council: The Highland Council are responsible for the provision of social services, emergency transport, accommodation, feeding of the public affected and the co-ordination of the recovery phase of an incident at Vulcan NRTE.

Scottish Environment Protection Agency: The Scottish Environment Protection Agency is a single independent environment protection agency and their responsibilities will include monitoring radioactive discharges and waste and enforcement of countermeasures. They have a special responsibility for advising water authorities on the control of potable water. They will be supported in this matter by the Radiological Incident Monitoring Network.

Strategic Co-ordinating Centre (SCC) Chairman (Supported by Staff Officer and Minute Secretary)

Role of the SCC Chairman:

The SCC Chairman will harmonise the integration of the expertise of all the agencies involved, with the object of effectively bringing the incident to a successful conclusion.

During the emergency phase of an incident at Vulcan NRTE, the Chief Constable/Deputy Chief Constable of Northern Constabulary, or a senior Officer nominated by him, will fulfil the role of the SCC Chairman. In the recovery phase of the incident, the Chief Executive of The Highland Council will take over the role of the SCC Chairman. The transfer of co-ordination will be by mutual agreement and will be recorded in writing.

The Chairman will be responsible for calling and chairing the Strategic Co-ordinating Group meetings in the SCC. The SCC Chairman is also responsible for ensuring that a record of any decisions is taken and displayed for the information of all agencies in the SCC. The Chairman, in consultation with the MCA, will decide which agencies will be represented on the Strategic Co-ordinating Group. Representatives from each agency should be kept to a minimum.

7.4 Information within the Strategic Co-ordinating Centre

To co-ordinate the flow of information between all the agencies present within the SCC, Northern Constabulary will operate an administration system. This administration system will consist of a police logger and support team. All information of relevance to other agencies within the SCC will pass through the police logger.

Message/Action System: To ensure that a record of all strategic information passed between agencies during a major incident/exercise is recorded, a message/action system is administered by the Strategic Administration Team (SAT).

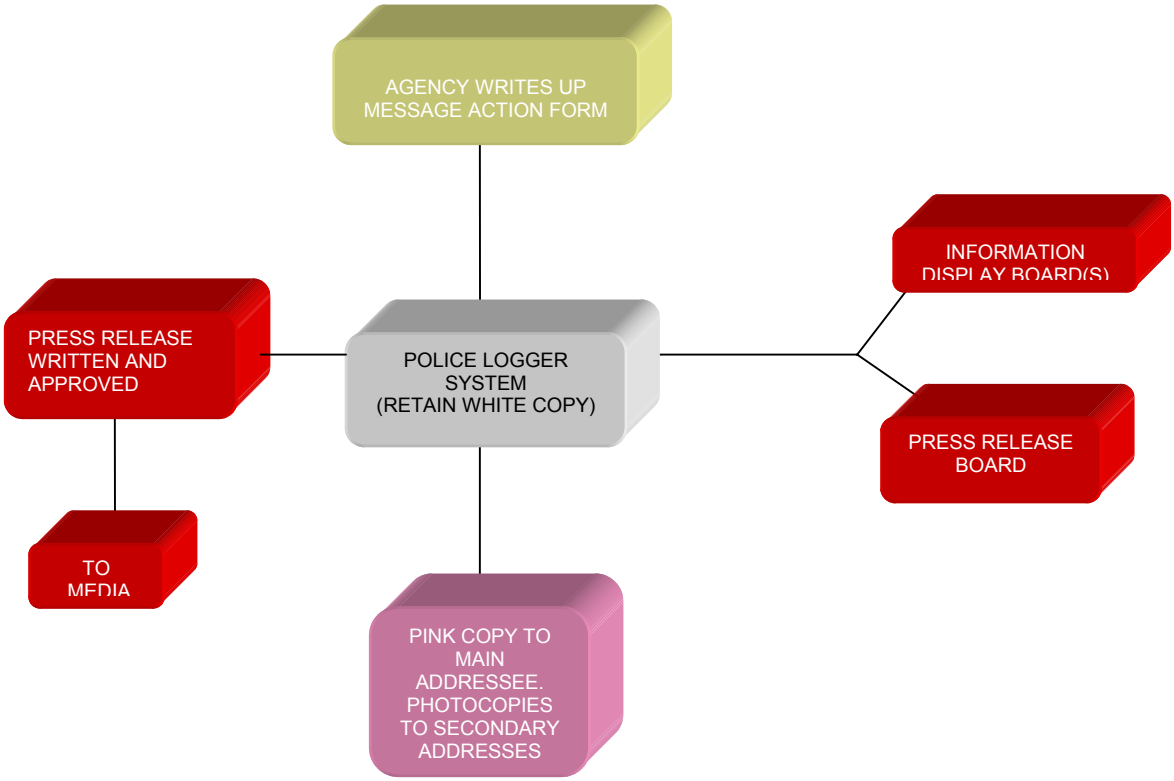
Message/Action Form: The message/action form is designed as a multi-purpose form which should be used for sending messages or requesting and replying to actions. Each agency present at the SCC will be supplied with a pad of the forms which are carbonized and produced in triplicate. After completing the message/action form the person raising the form should take it to the Quality Assurer, who forms part of the Strategic Administration Team (SAT), located in the atrium at Police Headquarters. The form is checked by the Quality Assurer to ensure that it has been completed satisfactorily and then passed to the Indexer who will give it a number and time received. Thereafter:

(a) the Indexer will retain the which copy of the form and return the pink and yellow copies to the person raising the form.
(b) The person raising the form should pass the pink copy to the addressee and retain the yellow copy for filing.
(c) The SAT will thereafter distribute the information copies, as required.

Information Display: All the information recorded by the SAT will be displayed on the 'Incident Summary Board', located at the entrance to the multi-agency room. The Police Strategic Support will continually update the Status Board which is displayed in the multi-agency room. The Status Board will give an update on information such as wind direction, declaration of categories and a ban on food or water etc.

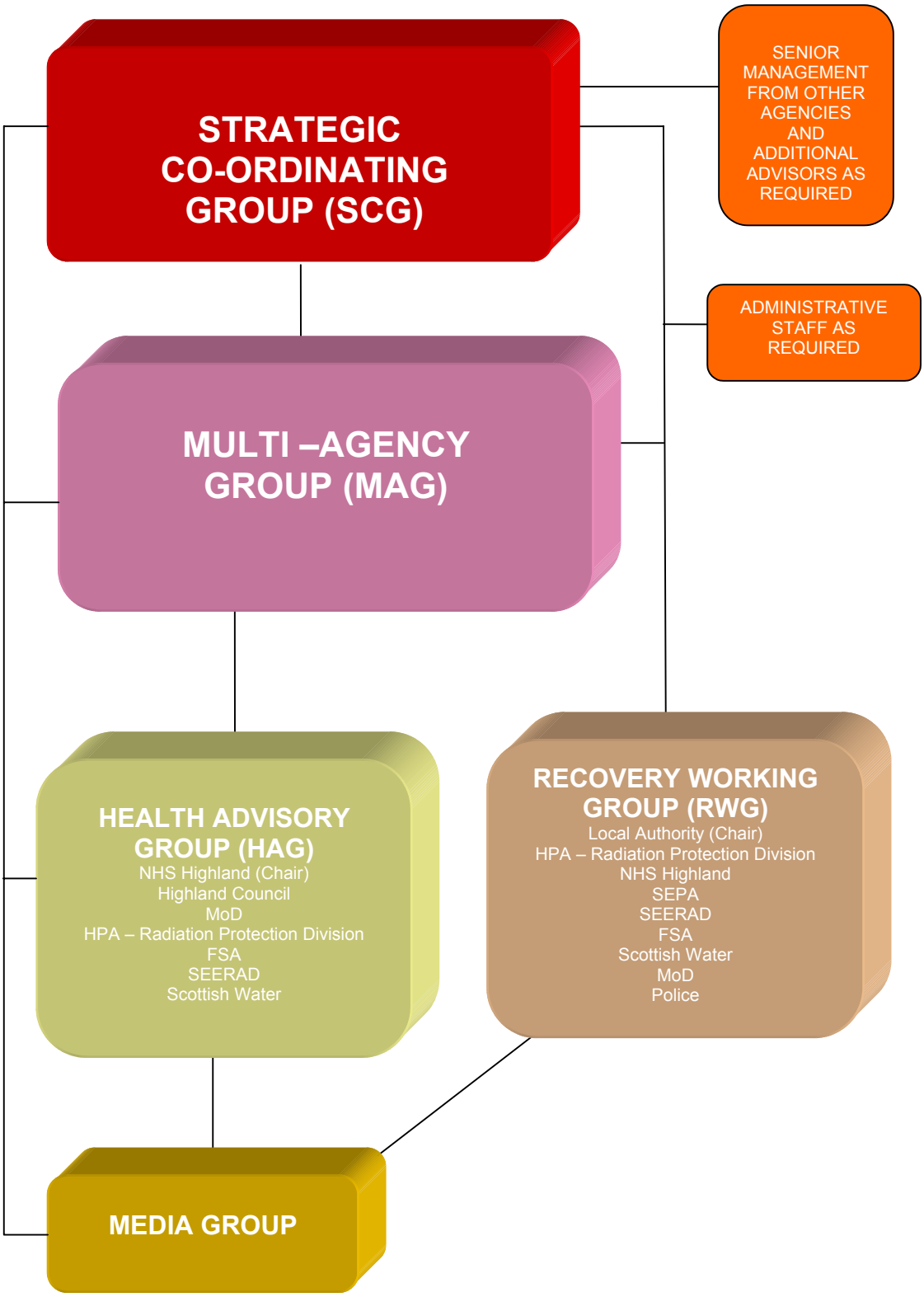
Press Releases: All Press Releases are approved by the Strategic Co-ordinating Group prior to being released to the media. The press releases will go through the SAT as described above and will be displayed in the atrium on the 'Press Releases' Board.

7.5 MESSAGE/ACTION FORM AND PRESS RELEASE FLOW CHART



See detail at 7.4 on Page 26

7.6 STRATEGIC AND TACTICAL MANAGEMENT



SECTION 8: MEDIA MANAGEMENT

8.1 Introduction

The task of dealing with media pressure at the scene of a major incident at Vulcan NRTE with off-site implications will be co-ordinated by the Police during the emergency phase of the incident. Media personnel will arrive at the scene of an incident at Vulcan NRTE very quickly, as they will often have heard of the disaster at the same time as the emergency services. They will expect to have instant access to the facilities they require and an instant response to their request for information and briefings. If these demands are not anticipated, media representatives are likely to add to the confusion.

8.2 Pre-prepared Press Statements

Pre-prepared press statements have been agreed between Vulcan NRTE and the responding organisations. The Vulcan Incident Commander will assess the nature and likely rate of development of the incident and advise the duty officer at Northern Constabulary's Force Operations Room which of the following statements should be released to the media.

Initial Statement 1

If the circumstances of the incident are not developing quickly, the initial holding statement will be:

'*An incident has occurred at* *(time, day and date)* *at Vulcan Naval Reactor Test Establishment, which is located adjacent to the UKAEA Dounreay site, but is a separate establishment. Emergency services have been alerted and are currently responding. Keep tuned to one of the following TV or Radio channels: Grampian TV, Moray Firth Radio – 97.4 FM, 102.5 FM, 1107 KHZ, BBC Radio Scotland – 92.4 to 94.7 VHF, 810 MW and an update will be given when further information becomes available.*'

This statement will be issued to the media by the duty officer at the Northern Constabulary Force Operations Room immediately after being informed of an incident at Vulcan.

The purpose of this initial holding statement is to provide time to set up the Forward Media Liaison Point (FMLP) and the Media Briefing Centre (MBC). Copies of this initial statement should be faxed to the Police Incident Control Post at Wick Police Station and the Strategic Co-ordinating Centre at Police Headquarters, Inverness when they are set up.

Initial Statement 2

If the Vulcan Incident Commander has information to confirm that the incident has attained the level of a category 1 accident and is likely to escalate quickly, then the advice to the duty officer at Northern Constabulary Force Operations Room will be to release the following press statement.

'*An incident occurred at* *(time, day and date)* *at Vulcan Naval Reactor Test Establishment, which is located adjacent to the UKAEA Dounreay site, but is a separate establishment. Emergency services have been alerted and are currently responding. As a precaution we are advising members of the public within 2 km of the site, including residents in Buldoo, Achvarasdal, Upper Dounreay and Old Reay to take shelter, the instructions for which are:*

- ***go indoors and stay there,***
- ***close all doors, windows and ventilators,***
- ***switch off any ventilation or air conditioning systems which draw air from outside the building,***
- ***do not try to collect children from school, the school authorities will look after them,***
- ***food and produce that has been stored uncovered and outside, and water from private supplies should not be consumed until advised otherwise.***

Keep tuned to one of the following TV or Radio channels: Grampian TV, Moray Firth Radio – 97.4 FM, 102.5 FM, 1107 KHZ, BBC Radio Scotland – 92.4 to 94.7 VHF, 810 MW and an update will be given when further information becomes available.'

Supplementary Press Statement

Further press statements will be developed as part of the press strategy within the media cell at the Strategic Co-ordinating Centre, Police Headquarters, Inverness. However, should the situation worsen, to the level of a category 2 accident, prior to the formation of the media cell at the Strategic Co-ordinating Centre, then the following statement is to be released by the duty officer at Northern Constabulary Force Operations Room, on the advice of the Vulcan Incident Commander.

'Further to the press release of** (time)**, and on the advice of the Director of Public Health, members of the public within 2km of the Vulcan NRTE site who have previously been issued with Stable Iodine Tablets (SITs) also known as Potassium Iodate Tablets (PITs) should now take them, in accordance with the accompanying written instructions. Members of the public previously advised to do so should continue to remain indoors .'

Copies will be faxed to the Forward Media Liaison Point, Site Emergency Control Centre, Local Authority Emergency Operations Centre, Raigmore, the Police Incident Control at Wick Police Station and the Strategic Co-ordinating Centre, Police Headquarters, Inverness.

8.3 Forward Media Liaison Point

The Forward Media Liaison Point (FMLP) has been identified as the Ormlie Campus of the North Highland College, Thurso. It is the responsibility of the UKAEA Dounreay to set up the Forward Media Liaison Point on behalf of Northern Constabulary. It is likely that significant media attention will focus around the site at Vulcan NRTE and all media representatives in the Caithness area should be directed there. Once the Media Briefing Centre has been set up in Inverness, the media should be encouraged to go there, where the strategic representatives from the responding organisations will be present to conduct press conferences. However, it must be recognised that some media will always remain at or near the scene, and the FMLP will require to remain operational for the duration of any incident.

The main functions of the Forward Media Liaison Point are to;

- Co-ordinate the media response at a local level,
- Provide 'pooling' arrangements for on-site visits,
- Provide interview facilities,
- Provide media briefing facilities in co-ordination with the SCC in Inverness,
- Provide copies of all press statements.

Following the initial press release, prior to the Media Briefing Centre becoming operational, organisations should, where possible, consult the Media Cell Co-ordinator before issuing media statements, to ensure that clear, accurate and non-conflicting information is provided.

8.4 Media Briefing Centre

The Vue Cinema, Inverness Retail Park, Inverness, has been identified as the Media Briefing Centre (MBC) for any major incident occurring at Vulcan with off-site consequences. The MBC will be set up simultaneously with the Strategic Co-ordinating Centre (SCC). This will be the strategic level of response to the media.

A number of advantages are gained by setting up a MBC as soon as possible:

- It provides the media representatives with a known source for the most accurate and up to date information which the authorities can make available.
- Once spokespersons have been nominated, a smooth flow of information can soon be established, compared and co-ordinated.
- There is a better chance of identifying and dealing with any potential differences in approach, and this can be quickly relayed to the emergency services and other control centres.

Once set up, all press conferences should take place within these premises, with appropriate personnel being transported to the MBC from the SCC by Northern Constabulary.

A Media Briefing Centre Manager will be appointed by Northern Constabulary, who will be responsible for the smooth running of the Media Briefing Centre. Close liaison will be necessary between the Strategic Co-ordinating Centre and the Media Briefing Centre, and robust communications will be required.

Note: The Media Briefing Centre should continue to be available for as long as necessary. In some cases, this may be after the local authority takes over the co-ordinating role from the police.

8.5 Media Management

The Media Cell Co-ordinator, acting under the SCC Chairman's authority, will be responsible for ensuring co-ordination of all media matters until there is a handover. The handover phase of a major incident includes the handover of responsibility for all media matters. A multi-agency approach to the media will be practised, with media representatives from all participating organisations based in the media cell at the Strategic Co-ordinating Centre (SCC) and the Media Briefing Centre (MBC). No statement will be given to the media without having first been vetted by the Police led media cell, in consultation with the appropriate members of the Strategic Co-ordinating Group. Media statements will be distributed to all agencies at the Strategic Co-ordinating Centre (SCC) and the Media Briefing Centre (MBC). Press statements will also be displayed at the SCC and the MBC. Copies will be faxed to Northern Constabulary Force Operations Room, Forward Media Liaison Point, Dounreay Emergency Control Centre, Local Authority Emergency Centre, Raigmore and the Police Incident Control Post at Wick Police Station.

Media representatives from the organisations operating within the Strategic Co-ordinating Centre will be expected to work as part of a co-ordinated team, issuing joint statements.

The timing of media briefings will be agreed by the Strategic Co-ordinating Centre Chairman and will take into consideration the views of all agencies, media interest and any media deadline, eg. different time zones, which may apply.

The Strategic Co-ordinating Centre Chairman and the Military Co-ordinating Authority should, as far as is reasonably practicable, be informed beforehand of the content of any media statement.

Spokespersons at media briefings will be kept to a minimum. Spokespersons will be agreed in advance by the Strategic Co-ordinating Centre Chairman and the Military Co-ordinating Authority, as appropriate, in the light of developments and the interests of the media, and taking into consideration the views of the other agencies. The Strategic Co-ordinating Centre Chairman will nominate the appropriate police press spokesperson, according to the status of the emergency, and will take on that role personally, when necessary.

Efforts should be made to provide a continuous supply of information (with spokesperson being available, as appropriate) in order to recognise the needs of the broadcast media who will be the main recipient of that type of information.

SECTION 9 : INITIAL ACTIONS

9.1 Initial Actions Vulcan Personnel and the Royal Navy

On declaration of a site emergency the following actions will be undertaken by Vulcan personnel and the Royal Navy.

Non essential Vulcan Personnel

Immediately evacuate the site via the Borer personnel accountancy turnstiles under the direction of the most senior person at the gate.

At the evacuation point (Dounreay Exhibition Centre) the most senior person will assume the role of Reception Area Controller. The Reception Area Controller will:

- Designate a person to establish communications with the Vulcan Emergency Control Centre (VECC) and the Dounreay Emergency Control Centre (DECC).
- Arrange for persons to wear respirators if instructed by Site Controller.
- Arrange provision of water to assist personnel in swallowing Stable Iodine Tablets (SITs) also known as Potassium Iodate Tablets (PITs).
- Arrange monitoring of personnel supervised by Health and Safety staff, and the completion of Evacuee Record forms for each evacuee.
- Ensure, so far as possible, the well being and reassurance of evacuated persons.
- As soon as possible, in liaison with the Site Controller and Vulcan Incident Commander, arrange for evacuees to go home.

Site Controller

- Go to the VECC with all available Rolls-Royce emergency personnel.
- Ensure alerting call to Chief of Defence Staff Duty Officer has been made.
- Ensure alerting call to Wick Police Station has been made.
- Contact Shift Supervisor and establish cause of alarm.
- Request all available radiation readings.
- Establish and maintain contact with DECC.
- Appoint a Casualty Liaison Officer to liaise with the Dounreay Chief Fire Officer and the Vulcan Liaison Officer in the DECC.
- Arrange rescue parties for missing/injured personnel with Dounreay Chief Fire Officer.
- Determine doses likely to be received. Ensure that casualties (including personnel with high doses) are identified.
- Authorise doses.
- Initiate plant recovery programme.
- Establish contact with evacuation point.
- Establish contact with Relatives Information Centre.
- Ensure that two suitably experienced personnel are dispatched to the Strategic Co-ordinating Centre in Inverness.
- Maintain liaison with Technical Guidance Group, Abbeywood, approximately every half hour.

Vulcan Incident Commander:

- Go to the DECC with all available Naval staff and establish command.
- Request UKAEA organisation to perform their emergency function, as specified in the Dounreay Emergency Handbook.
- Establish communication with Site Controller at the VECC. Confirm accident category with Health Physics Liaison Officer.
- Formally declare the accident category.
- Request UKAEA Administration Adviser to contact Northern Constabulary and confirm contact.
- Release Initial Accident Signal.
- Telephone report to Deputy Chief of Defence Staff Duty Officer.
- Telephone report to Naval Base Clyde Deputy Operations Officer.
- Confirm radioactive release.
- Check wind speed and direction are marked on the wall charts. Confirm area of radiation hazard and possible contamination.
- Obtain and maintain accurate casualty status.
- Assess countermeasures required and advise as appropriate.
- Advise VECC, ERIC, OSC (Clyde), SCC (Inverness) by fax, of up to date information, approximately every half hour.
- Send amplifying accident signals approximately every half hour.
- Arrange for all non-essential personnel to be sent home as soon as possible.
- Confirm that initial press release has been issued.
- Request Nuclear Accident Response Organisation to action Highwayman (extra telephones).
- Continue to issue amplifying reports to: Deputy Chief of Defence Staff; Duty Officer Nuclear Accident Response Organisation; Flag Officer Scotland Northern England and Northern Ireland, Naval Base Clyde; Northern Constabulary and Scottish Executive Environment and Rural Affairs Department.

Nuclear Accident Back-Up Support Team (NABUST)

- Deploy to the Strategic Co-ordinating Centre in Inverness.
- Assume the role of Military Co-ordinating Authority.

9.2 Initial Actions UKAEA Dounreay

If the Vulcan alert is sounded, and not countermanded by Vulcan within one minute, the Dounreay site alert will be sounded. On the sounding of the Dounreay site alert:

- Dounreay Emergency Control Centre (DECC) will be manned
- Emergency Radiological Incident Centre (ERIC) will be manned
- Dounreay Fire and Ambulance Service will mobilise and await further instruction
- The Civil Nuclear Constabulary (CNC) will be on standby
- The Occupation Health Department will be on standby
- The Forward Media Liaison Point, Ormlie Campus at North Highland College, will be manned and on standby

Given that a Category 1 incident, once confirmed by Vulcan, invokes the off-site arrangements, UKAEA Dounreay will:

- Mobilise a UKAEA team to attend the Strategic Co-ordinating Centre (SCC), Inverness.

9.3 Initial Actions Northern Constabulary

Initial Actions by Force Operations Room

If an alert is received by Northern Constabulary, indicating that a nuclear accident has occurred at Vulcan NRTE, the Force Operations Room Duty Officer will:

- Confirm that the alert is genuine by telephoning the Vulcan Emergency Control Centre (VECC) 01847 892144.

Inform the following that a major incident has been declared (if an external agency invite them to send a representative to the Strategic Co-ordinating Centre, Police Headquarters, Inverness)

- Create log on the IMPACT logging system and update with actions, including times when all personnel informed
- Wick Control Room, Caithness and Sutherland Area Command (advise of IMPACT log number)
- Highland and Islands Fire Brigade
- Scottish Ambulance Service
- Northern Constabulary Cell Co-ordinator: Chief Superintendent, Head of Operations (to attend Police HQ immediately)
- Northern Constabulary Media Spokesperson and Support Services: Chief Superintendent Support Services
- Northern Constabulary Logistics Cell Co-ordinator: Head of Administration (to set up the Strategic Co-ordinating Centre)
- Northern Constabulary Media Adviser
- Northern Constabulary Media Cell Co-ordinator: Superintendent Corporate Development Service Unit (to attend Police HQ immediately)
- Northern Constabulary Superintendent Operational Support (to attend Police HQ immediately)
- Northern Constabulary Senior Investigating Officer: Detective Superintendent Crime Support (to attend Police HQ immediately)
- Northern Constabulary Casualty Bureau Co-ordinator: Chief Inspector Operational Support (to attend Police HQ immediately)
- NHS Highland: Raigmore Hospital
- The Highland Council Emergency Planning Officer
- Northern Constabulary Emergency Planning Section (to attend Police HQ immediately)
- Northern Constabulary Chief Constable
- Northern Constabulary Deputy Chief Constable
- Scottish Executive Emergency Planning Division
- Aeronautical Rescue Co-ordination Centre (RAF Kinloss) to place on standby
- Maritime and Coastguard Agency
- Scottish Environment Protection Agency
- Scottish Water
- Food Standards Agency
- Northern Constabulary Area Commander, Orkney
- Orkney Islands Council, Emergency Planning Officer

Thereafter, if required, the duty officer Northern Constabulary Force Operations Room will:

- Call out casualty bureau team
- Call out the strategic administration team
- Call out any other relevant specialist assistance
- Issue initial press statement immediately an alert has been received from Vulcan NRTE. The Vulcan Incident Commander will advise the duty officer Force Operations Room which press statement to release
- Issue public warnings/other emergency broadcasts
- Obtain weather details from Aberdeen Weather Centre

Initial Actions by Wick Control Room

If an alert is received by Wick Control Room indicating that a nuclear accident has occurred at Vulcan NRTE, the Area Command Control Room will:

- Confirm safe route to Dounreay Emergency Control Centre (DECC) and estimate timescale of route remaining safe, by telephone DECC on 01847 804622 (if no answer at DECC contact UKAEA Control/Fire Brigade Control on 01847 802478)
- Dispatch at least two officers, including the duty Inspector/Sergeant from Thurso Police Station to the DECC
- Inform the Area Commander or deputy
- Call out additional Police personnel as directed by the Area Commander or senior officer on duty
- Call out additional support staff for the Area Command Control Room as directed by the Area Commander or senior officer on duty
- Inform Procurator Fiscal, Wick
- Update log on the IMPACT logging system, including note of times when all personnel contacted
- Maintain liaison with the Force Operations Room.

Initial Actions by First Officer at the Scene / Incident Officer

The first officer at the scene will be the duty Inspector/Sergeant, Thurso, who will go directly to the DECC. This officer will assess all the information available and pass it to Wick Police Station for the information of the Area Commander or his depute. The first officer at the scene may find that the CHALET mnemonic will assist with gathering appropriate information.

Casualties	Details, number, severity
Hazards	Radiation levels, fires, explosives, chemicals etc
Access	Identify safe route for other services
Location	Pinpoint location of incident within VULCAN site
Emergency Services	Present/required
Type of Incident	Reactor accident, fuel handling etc

Once the Area Commander or his depute arrive at Wick Police Station, then this officer will take over the role of Incident Officer.

The Incident Officer will need to ensure that the Police Incident Control Post is being set up at Wick Police Station.

Thereafter, consider establishing inner and outer cordons.

Inner Cordon will be the site fence.

Outer Cordon It will be the duty of Northern Constabulary to implement the outer cordon, pertinent to the circumstances prevailing at the time. **Some suggested** road block points have been identified at the following locations. Two or three cordon points would suffice for most situations. (See Map Page 22).

Road Block 1: Strath Halladale – junction of A897 / A836.

Road Block 2: East end of Reay village on A836, at its junction with unclassified road opposite Reay Police Station

Road Block 3: A836 at junction with the unclassified Shebster Road at Isauld

Road Block 4: A836 road at its junction with the unclassified Achreamie road

Road Block 5: The minor road between Thurso and Reay at Shebster Post Office

Road Block 6: A836 at junction with the unclassified road to Lythmore

Road Block 7: The minor road between Thurso and Reay at Westfield

Road Block 8: A836 foot of Scrabster Hill, Thurso

Cordon points will be well outwith any contaminated area or potentially contaminated area, and therefore Police Officers on duty at these points will **not** require to wear protective clothing as a matter of routine.

The Incident Officer will need to consider deploying Police personnel to the following, when established:

- Survivor Reception Centres
- Radiation Screening Unit (using Radiation Screening Unit team bag from Thurso Police Station)
- Body Holding Area
- Receiving Hospitals
- Traffic control
- Forward Media Liaison Point

Initial Actions at the Strategic Level

The Police Cell Co-ordinator (Chief Superintendent Head of Operations) on arrival at Police Headquarters, will ensure that the following is carried out:

- Liaise with Logistics Cell Co-ordinator and ensure that the Strategic Co-ordinating Centre has been set and that the Strategic Administration Team has been called out.
- Liaise with the Force Operations Room and ensure that the alerting cascade has been carried out and agencies invited to attend the Strategic Co-ordinating Centre.
- Manage the strategic level of response to the incident until the arrival of the Overall Incident Commander who will be the Deputy Chief Constable / Chief Constable. (The Overall Incident Commander will assume the role of Strategic Co-ordinating Centre Chairman when the Strategic Co-ordinating Centre is set up.)
- Ensure that all the cell co-ordinators have been called out, and liaise with them in relation to what extent their cell should be implemented.

Evacuation If any category of alert is received, early evacuation around Vulcan NRTE should be considered by Northern Constabulary and The Highland Council. The decision to evacuate will be made at the strategic level of command at the Strategic Co-ordinating Centre, Inverness. Evacuation procedures would only be commenced following confirmation from the Vulcan Incident Commander at the Dounreay Emergency Control Centre (DECC) that there is no possibility of an imminent radioactive/chemical release. Evacuation protects the general public predominantly against radiation from fission products on the ground.

Evacuation is a Police responsibility and the decision to proceed with this rests with the Chief Constable/Overall Incident Commander, based largely on advice received from the Military Co-ordinating Authority. If the Military Co-ordinating Authority has not arrived at the Strategic Co-ordinating Centre at Inverness, then advice will be sought from the Vulcan Incident Commander at the DECC.

9.4 Initial Actions by Highland and Islands Fire Brigade

On receiving a call for assistance from NRTE Vulcan, Fire Brigade Control will:

(a) Site Emergency

The Highland and Islands Fire Brigade vehicles will proceed to UKAEA Dounreay by the safe route given by the DECC.

- Mobilise 3 water tender ladders
- Mobilise the District Officer Caithness (or substitute)
- Mobilise the nearest Senior Duty Officer to the Dounreay Emergency Control Centre (DECC)
- Inform, if not already mobilised

  North Area Commander
  Deputy Firemaster
  Firemaster
  Hazmat Officer (to Control)

(b) Non-Site Emergency

- Mobilise 2 water tender ladders
- Mobilise the District Officer Caithness (or substitute)
- Inform as at Site Emergency above

(c) Strategic Level

- Mobilise Brigade Senior Officer to Strategic Co-ordinating Centre at Police Headquarters, Inverness
- Mobilise BEPSO or substitute to Strategic Co-ordinating Centre at Police Headquarters, Inverness

Initial Actions by OIC of First Attendance

- Proceed to UKAEA Dounreay main gate
- On arrival at UKAEA main gate, await for Police escort to the Fire Station (RVP 1)
- Hand in the nominal roll board to the UKAEA Fire Brigade Controller and receive a briefing on the incident
- Receive personal protective equipment, as required, from the UKAEA Health Physics team
- Proceed to the Forward Control Point

Initial Actions by District Officer (or substitute)

- Proceed to UKAEA Dounreay main gate
- Report to the main gate and await Police escort
- Proceed to Forward Control Point for briefing by Incident Officer in Charge and assume responsibility for fire fighting operations

Initial Actions by Senior Duty Officer

- Proceed to UKAEA Dounreay main gate
- Report to the main gate and await UKAEA (Police) escort to Dounreay Emergency Control Centre (DECC)
- Once briefed by the Incident Liaison Officer, will act as the Fire Brigade Liaison Officer.

9.5 Initial Actions by Scottish Ambulance Service

On declaration of a Vulcan NRTE site alert, the Scottish Ambulance Service will mobilise a pre-determined attendance as stated in its joint emergency plan for UKAEA Dounreay / Vulcan NRTE.

Approach and Access

Scottish Ambulance vehicles will proceed to UKAEA Dounreay by the safe route given by the DECC, either:

- A836 – Thurso – Dounreay direct
- B874 Glengolly then via Isauld to the A836 at Reay then to Dounreay.

On Arrival

At the main gate ambulance crews will remain in their vehicles, advise UKAEA Constabulary of the station responding from and proceed directly to RVP 1 (Fire Station).

The officer in charge will report to the Fire Brigade Control Room where information on the incident will be available and contact with the Fire Brigade and Occupation Health Department will be established.

The first crew on scene will initiate liaison with other services and act as:

Ambulance attendant will resume role of Ambulance Incident Officer
Ambulance driver will resume role of Ambulance Communications Officer

On receipt of information gained from the AIO the Communications officer will initiate a CHALET message to the Emergency Medical Dispatch Centre in Inverness. This must be carried out within 10 minutes of the first crew on scene.

Strategic Co-ordinating Centre

Send a senior officer to the Strategic Co-ordinating Centre, Inverness.

9.6 Initial Actions by Maritime and Coastguard Agency - HM COASTGUARD

On receipt of a warning of an incident at Vulcan NRTE, Maritime Rescue Co-ordination Centre Pentland will take the following action:

- HM Coastguard will open an Incident in their Command and Control System, and establish communications with the Police Incident Control. The Coastguard station responsible for the District in which the incident occurs, will be alerted, to co-ordinate Coastguard actions on or near the scene.

- If Inverness SCC is activated, MRCC Aberdeen may dispatch suitable personnel to attend. Until the arrival at the SCC of the CG liaison personnel, information flow will remain via the Police, either at the SCC, or Force Operations Room.

- HM Coastguard will initiate alert broadcasts on Radio and Satellite Systems at the request of the Police Incident Commander/SCC Liaison Officer.

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

- HM Coastguard may task Coastguard units afloat and on shore to assist the other emergency services, and will respond to any other requests through the SCC Liaison.

9.7 Initial Actions by NHS Highland

On receipt of a declaration of Emergency from NRTE Vulcan, Dounreay the initial response from NHS Highland will include

- Alerting hospitals designated to receive radiation contamination casualties
- Provide medical services to casualties
- Provide a Consultant in Public Health Medicine to attend the Strategic Co-ordinating Centre, Inverness to provide public health advice, liaison with other agencies, and chair a Health Advisory Group
- Notify the Director of Public Health;
  Medical Director;
  Scottish Executive Health Department;

  of the Incident and the Implications
- Implement the NHS Highland Major Incident and Major Emergencies Plan, appropriate to the needs of the incident, which may include:
  - Participation in a Joint Media Cell;
  - Consideration of distribution and advice to consume Stable Iodine Tablets (SITs) also known as Potassium Iodate Tablets (PITs);
  - Provide public reassurance monitoring.

9.8 Initial Actions by The Highland Council

Following notification of an alert from Northern Constabulary to the Emergency Planning Unit, the initial response will be as follows:

- Contact Caithness Area Manager who will:
  - (a) Call out the Caithness Emergency Group.
  - (b) Set up and staff the Wick Emergency Centre.
  - (c) Initiate proceedings to activate Radiation Screening Unit(s) and associated Reception Centre Centres, if required.
  - (d) Place on standby a labour force to carry out improvisation work in relation to Radiation Screening Units and associated Reception Centres.
  - (e) Alert local WRVS teams to prepare to assist with registration and feeding at Reception Centre(s), if required.

- Arrange for transport to be on standby, should evacuation become necessary.
- Despatch two Emergency Planning Officers and a communications team, in emergency communications vehicle, to Wick.
- Set up and fully staff the Emergency Centre, Raigmore, Inverness.
- Contact Chief Executive, The Highland Council. Arrange attendance at the Strategic Co-ordinating Centre (SCC) with necessary admin support.
- Contact Sutherland Area Manager – advise of the situation and prepare to establish either/both of the Sutherland Radiation Screening Units and associated Reception Centres, if required.
- Notify the Food Standards Agency and invite the Agency to send representatives to the Strategic Co-ordinating Centre.

9.9 Initial Actions by Scottish Water

On receipt of the message indicating that there is a nuclear incident at Vulcan NRTE Scottish Water will arrange for the following staff to attend the Strategic Co-ordinating Centre at Police Headquarters, Inverness.

- Senior Scientist
- Asset Operations Manager
- Press Officer

These staff shall:

- Assess which water supply sources are at risk of contamination. This shall be on the basis of information supplied by SEPA/Health Protection Agency.
- Arrange and co-ordinate the sampling and analysis of sources and treated supplies at risk in conjunction with SEPA/Health Protection Agency.
- Assemble data on the level of contamination of the public water supplies
- In conjunction with Scottish Water Emergency Teams, take appropriate measures to minimise the risk to public health
- Provide advice to the Public Information Co-ordinator on issues relating to the public water supply
- Provide advice to Scottish Water Staff on information to be given to customers in accordance with the Public Information Guidelines.
- In conjunction with the NHS Board(s) assess the risk to the public health as a result of the contamination.

9.10 Initial Actions by the Scottish Environment Protection Agency

Following notification of a Vulcan 'Category 2' or 'Category 3' alert from Northern Constabulary to SEPA, the initial response will be as follows:

- Provide SEPA representatives at the Strategic Co-ordinating Centre, Police Headquarters, Inverness.
- Set up and staff the SEPA Emergency Control Centre.
- Provide advice on the environmental impact of a radiological incident to relevant organisations.
- Provide information to the public and media to ensure effective flow of information and advice, where appropriate.
- Advise on appropriate disposal of radioactive waste and, if appropriate, authorise such disposals.
- Ensure effective communications within SEPA and ensure that SEPA Corporate Management Team and Board members are consulted and kept informed, where necessary.
- Ensure the safety of all SEPA staff involved in responding to the emergency.
- Determine if breach of site authorisation has occurred and gather relevant information, if appropriate.

9.11 Initial Actions by The Scottish Executive

Following notification of an alert from Northern Constabulary to The Scottish Executive that a nuclear incident has occurred at Vulcan NRTE, the initial response will be as follows:

- Cascade the call throughout the Scottish Executive.
- Send a Senior Government Liaison Representative to the Strategic Co-ordinating Centre, Police Headquarters, Inverness.
- Ensure that a representative from the Scottish Executive Environment and Rural Affairs Department attends at the Strategic Co-ordinating Centre, Police Headquarters, Inverness.
- Open the Scottish Executive Emergency Room in Edinburgh.
- Ensure that a representative from the Scottish Executive Information Directorate attends at the Strategic Co-ordinating Centre, Police Headquarters, Inverness.

9.12 Initial Actions by Orkney Islands Council

Following notification of an alert from Northern Constabulary to the Orkney Islands Council that a nuclear incident has occurred at Vulcan NRTE, the initial response will be as follows:

- Cascade the call throughout the Orkney Islands Council;
- Consider whether to send a Liaison Officer to the Strategic Co-ordinating Centre at Police Headquarters, Inverness;
- Make contact with the Orkney Health Board DPH/CPHM;
- Set up and staff the Orkney Islands Council emergency centre as required;
- If necessary, call a meeting of all relevant organisations.

9.13 Initial Actions by NHS Orkney

Following notification from the Northern Constabulary that a nuclear incident has occurred at Vulcan NRTE, NHS Orkney will;

- Inform the Chief Executive, NHS Orkney;
- Inform the DPH/CPHM;
- Establish communications with the Scottish Executive Health Department;
- Consider sending a Liaison Officer to the Strategic Co-ordinating Centre at Police Headquarters, Inverness;
- Liaise with the local emergency centre as required;
- Assist with press liaison and information to the public.

9.14 Initial Actions by the Food Standards Agency

Following notification from the Scottish Executive that a nuclear incident has occurred at Vulcan NRTE, the Food Standards Agency will:

- Notify Food Standards Agency HQ (London) and establish the HQ Emergency Room.
- Send FSA representatives to the Strategic Co-ordinating Centre, Police Headquarters, Inverness.
- Send FSA media spokesperson to the Media Briefing Centre, Warner Cinemas, Inverness.
- Send FSA representative to the Scottish Executive Emergency Room, if activated by the Scottish Executive.
- Provide advice on impact on the food chain to the public and relevant organisations.
- Liaise with relevant organisations as necessary.

9.15 Initial Actions of Nuclear Installations Inspectorate

The Inspectorate would send inspectors to the affected site and to the off-site facility and would set up its own emergency room at the Health and Safety Executive's Bootle headquarters. This would enable the Inspectorate to assess the likely course of the accident and its consequences, to consider the implications for other nuclear installations and to advise central government accordingly.

The Inspectorate would also be responsible for monitoring the activities of the operator and central Government on the accident.

9.16 Initial Actions of Health Protection Agency – Radiation Protection Division (RPD)

On receiving an alert call from Vulcan NRTE or NII, the Radiation Protection Division (RPD) will take the following action:

- Activate the Radiation Protection Division (RPD) Emergency Plan and set-up the Chilton Emergency Centre.
- Provide an RPD senior off-site advisor and supporting team to SCC at Police HQ, Inverness.
- Provide an RPD senior media spokesperson and supporting team to the MBC in Inverness.
- Provide an RPD senior advisor to attend the SEER in Edinburgh (for Vulcan also NAIAG at MoD HQ London).
- Assist NHS Highland in monitoring at Radiation Screening Unit.

SECTION 10 : THE PRINCIPLES OF COMMAND AND CONTROL

10.1 Introduction

In order to achieve a combined and co-ordinated response to a major incident the capabilities of the emergency services should be closely linked with those of the Local Authority and other agencies, following the principles of integrated emergency management.

The management framework should always embody the same principles irrespective of its cause or nature but remain flexible to individual circumstances. The response can be divided into three levels – Operational, Tactical and Strategic – the Principles of Command and Control.

The requirement to implement one or more of the management levels will be dependent upon the nature of the incident.

10.2 Operational Level

The scene immediately after disaster has struck is likely to be confused. To bring some order to this confusion it is important that the emergency services establish control over the immediate area and build up arrangements for co-ordinating the contributions to the response. Experience has shown that an effective response depends on the timely receipt of accurate and complete information and on sound decisions being made and appropriate actions set in train at the onset.

It is generally accepted that the first member of an emergency service to arrive on the scene should not immediately become involved with the rescue but make a rapid assessment of the disaster and report to their own control.

The emergency services will concentrate on their specific tasks within their areas of responsibility. Should it be necessary, consideration should be given to assigning control for a specific task or area to a designated officer of the emergency services or particular agency subsequently called to the scene.

The command of the resources belonging to any agency and applied within a geographical area, or used for a specific purpose, will be retained by that agency. Each agency must liaise fully and continually with the others employed in the same area to ensure an effective and combined effort.

If appropriate, the Police will normally act as the co-ordinator of this response at the scene. These arrangements will usually be adequate for the effective resolution of most incidents. However, for more serious incidents which require significantly greater resources it may be necessary to implement an additional level of management.

10.3 Tactical Level

The tactical level of command exists to determine priority in allocating resources, to plan and co-ordinate when a task will be undertaken and to obtain other resources as required. Most, but not all, of the tactical functions will be discharged at the scene of the incident. Some agencies, particularly Local Authorities, will prefer to operate from their administrative offices and will normally send a representative to the scene to liaise with the Incident Officer.

When more than one agency is operating at the tactical level there must be consultation between the various Incident Officers. These Incident Officers should not become directly involved with the activities at the scene but concentrate on the overall general management. In order to effect co-ordination, an interagency meeting should be held at regular intervals attended by each Incident Officer. The establishment of inter-service communication links will support the running of the incident at the scene. The Police will maintain a written record and normally act as the co-ordinating agency.

Should it become apparent that resources or expertise beyond the tactical level of command is required or should there be a need to co-ordinate more than one incident/scene, it may be necessary to implement a strategic level of management.

10.4 Strategic Level

The purpose of the strategic level of management is to formulate the overall policy in which the response to a major incident will be made.

A strategic co-ordinating group may be established which will be involved with ensuring priorities for demands by the tactical level of command are met, as well as setting out the plans for a return to normality once the incident has been brought under control. Tactical decisions are not the responsibility of this group.

The strategic co-ordinating group will also be aware of its wider role which may encompass a central government interest, handling requests for advice and assistance from individual services and agencies and formulating a media strategy.

It will be a police responsibility to establish and chair the strategic co-ordinating group during the emergency phase of any response. The group will comprise a nominated member from each agency involved. Each person must be able to make executive decisions in respect of resources within their agency and have the authority to seek the aid of other agencies in support of the role.

The strategic co-ordinating group should be based at an appropriate pre-planned location, normally away from the noise and confusion of the scene. As it is a Police function to chair this group, the strategic level of management will be located at the Police Headquarters, Inverness.

SECTION 11 : ROLES AND RESPONSIBILITIES

11.1 Roles and Responsibilities of the Royal Navy

MoD Nuclear Accident Response Organisation (MoD HQ NARO)

(a) To co-ordinate the response of all MoD authorities.

(b) To record and co-ordinate all reports and data from the accident site.

(c) To prepare and co-ordinate briefings of all government departments.

(d) To prepare and provide reports for the Nuclear Accident Information Advisory Group (NAIAG).

(e) To prepare and provide material for public and media information and briefings.

Military Co-ordinating Authority (MCA)

(a) Overall command of all local MoD post accident responses and procedures.

(b) Liaison with the local civil authorities and providing them with all relevant information and advice on the actions they should take.

(c) Responding to the media in consultation with the Police.

(d) Co-ordination and provision of support requested by the Incident Officer

(e) Reporting to MoD HQ NARO.

Vulcan Incident Commander

(a) Responsible to the MCA for co-ordinating all activities on site from the Dounreay Emergency Control Centre (DECC).

(b) In the immediate post-accident period, and until the MCA is established at the Strategic Co-ordinating Centre Inverness, the Vulcan Incident Commander will assume initial responsibility for:

(c) Liaison with and providing advice to local authorities.

(d) Liaison with the MoD and other Central Government Departments.

(e) Dealing with local press representatives.

Site Controller (Provided by Rolls Royce)

(a) Establish 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 health physics control.

(g) Ensuring that reliefs are provided for essential personnel.

(h) Authorising individual emergency radiation exposure levels.

11.2 Roles and Responsibilities of UKAEA Dounreay

The UKAEA Dounreay response to a Vulcan incident, once the site alert sounds, would have the entire emergency response organisation set-up come into force.

In responding to a Vulcan incident, the UKAEA Dounreay responsibilities are summarised as follows:

(a) Manning of the Dounreay Emergency Control Centre (DECC) to ensure that the safety of all personnel on the Dounreay site is carried out.

(b) Provide assistance and support to the Vulcan team at both the operational and tactical levels.

(c) Rescue and treatment of casualties.

(d) Manning of the Emergency Radiological Incident Centre to ensure that countermeasures advice is available.

(e) To co-ordinate casualty information and status.

(f) To keep the SCC fully up-to-date on present situation.

(g) Manning of the Forward Media Liaison Point in Thurso.

11.3 Roles and Responsibilities of Northern Constabulary

Responding to emergencies is a normal feature of the work of the police service. The normal roles and responsibilities of the police encompass the protection of life and property. The Chief Constable is also responsible in the emergency phase of response to any major incident for the control and co-ordination of the emergency services and other agencies.

In responding to an incident at a nuclear establishment the police responsibilities may be summarised as follows:

(a) The saving of life in conjunction with the other emergency services.

(b) Co-ordination of the emergency services and other organisation during the emergency phase of the incident. This applies to all three levels of response, operational, tactical and strategic. The Strategic Co-ordinating Centre would be opened at Police Headquarters, Inverness, to allow all the strategic decision makers for the agencies involved to assemble and make arrangements for the effective management of the emergency response via the Strategic Co-ordinating Group.

(c) The protection and preservation of the scene.

(d) The investigation of the incident in conjunction with other investigating bodies, where applicable.

(e) The collation and dissemination of casualty information.

(f) Identification of the dead on behalf of the Procurator Fiscal who is the principal investigator when fatalities are involved.

(g) Assist The Highland Council with the restoration of normality at the earliest opportunity.

(h) To initiate the cascade call out system to alert essential services to either deploy or standby.

(i) Co-ordination of the media response during the emergency phase.

To comply with the principles of the European Convention of Human Rights Act 1998, Northern Constabulary will carry out their responsibilities to protect individual's rights. If there is a requirement to interfere with the rights of an individual, it will only be done:

- where the law allows, and

where it is necessary to protect the rights and freedoms of others, prevent crime and disorder, to protect the health and morals of others, in the interests of national security or public safety; and

- the means used to achieve an objective will balance the general interests of the community against the rights of the individual and will use the least intrusive option available to meet the objective.

The identified actions for Northern Constabulary staff has been written in an open and transparent manner, however, should there be a requirement to disclose any or part of the information contained therein, CONFIDENTIAL information may be withheld.

The principal legislation pertaining to the Northern Constabulary's actions are:

- Ionising Radiations Regulations 1999
- Management of Health and Safety at Work Regulations 1999.

11.4 Roles and Responsibilities of Highland and Islands Fire Brigade

Responding to emergencies is also a normal function of the Fire Brigade. Statutory responsibilities as set out in the Fire Service Act 1947 comprise the saving of life, the protection of property, salvage and damage control and the rendering of humanitarian services, all with regard to fire related incidents. It is generally accepted, however, that the Fire Brigade is also the organisation best able to handle the rescue element of all serious accidents involving trapped persons or immediate hazard to the public.

The Brigade is capable of rapidly mobilising trained personnel and a broad range of specialist appliances and rescue equipment. In an emergency incident at NRTE Vulcan, these resources will be utilised as directed by the Brigade Duty Senior Officer to assist other agencies discharging their respective roles.

The core responsibilities of the Brigade include:

(a) Protecting property from the effects of fire and fire fighting actions

(b) Rescues from collapsed structures and road traffic accidents or major industrial accidents

(c) The control of incidents involving hazardous materials

(d) Safety management in and around Brigade operations.

11.5 Roles and Responsibilities of Scottish Ambulance Service

Responding to emergencies is a normal feature of the work of the ambulance service. The purpose of the Service is to provide immediate care to patients at the scene of an incident and care during transportation, to, from and between healthcare facilities. To supplement road transport, the Service operates an integrated air ambulance service using fixed wing aircraft and helicopters, controlled by the Scottish Ambulance Air Desk.

The ambulance service provides the Ambulance Control Point at which all NHS, and Voluntary Aid Society activity in support of the NHS, will be co-ordinated at the scene.

In responding to a major incident at any location in Scotland, responsibilities may be summarized as follows:

- The saving of life and the provision of immediate care to patients at the scene of a major incident and in transit to hospital
- The alerting of hospital services and immediate care GPs
- The management of decontamination for people affected by hazardous substances, prior to evacuation from the scene
- The evacuation of the injured from the scene in order of medical priority
- Arranging and ensuring the most appropriate means of transport for the injured to the receiving hospital
- The supply of patient care equipment to the scene of a major incident
- The transport of appropriate medical staff and their equipment to the scene of a major incident
- Alerting and co-ordinating the work of the Voluntary Aid Societies acting in support of the ambulance service at the incident site
- The provision and maintenance of communications equipment for medical staff and appropriate Voluntary Aid Society personnel at the scene of a major incident
- The prior training of medical staff/VAS personnel in the use of ambulance communications equipment
- The restoration of normality.

11.6 Roles and Responsibilities of Maritime and Coastguard Agency

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

11.7 Roles and Responsibilities of NHS Highland

11.7.1 NHS Highland, will normally be alerted to a major incident by the Police and/or Scottish Ambulance Service.

11.7.2 NHS Highland's Major Incident and Emergencies Plan will ensure:

- A planned and prepared response to notifications of a major incident or major emergency
- Availability of Medical Incident Officer (MIO) to attend the incident site
- Provision of immediate health care needs of casualties
- Provision of a site medical team if appropriate
- Early notification of the incident to :
  - the Consultant in Charge of Accident and Emergency at the receiving hospital:
  - the appointment of a Hospital Controller at the receiving hospital;
  - an NHS Highland media adviser;
  - the Director of Public Health, or his representative;
  - the Chief Executive of NHS Highland;
  - The Scottish Executive Health Department.

11.7.3 Specifically in relation to a radiation/contamination incident the Director of Public Health or his representative will;

Advise the Consultant at Raigmore Hospital, Accident and Emergency Department, of anticipated radiation exposed/contaminated casualties.

Advise NHS Highland's Radiation Protection Advisor of known circumstances and anticipated consequences of the incident.

Respond appropriately to the Incident category.

Category 1
Receive notification from Northern Constabulary.

Category 2 or 3
Proceed to Police Headquarters, Inverness, to represent NHS Highland on a Strategic Co-ordinating Group.

Establish and Chair a Health Advisory Group.

Consider and prepare for distribution and/or consumption advice regarding Stable Iodine Tablets (SITs) also known as Potassium Iodate Tablets (PITs), as one of the available countermeasures.

11.7.4 Stable Iodine (Potassium Iodate) Tablets
Stable Iodine Tablets (SITs) also known as Potassium Iodate Tablets (PITs) have been pre-distributed to residents within the 2km pre-planned countermeasure zone. Reserve supplies of Stable Iodine Tablets (SITs) are held at various locations (see Page 15).

Contaminated Casualties

The only NHS Highland facility designated to receive radiation contaminated casualties, is Raigmore Hospital, Inverness, where incoming casualties should be delivered to the Radiation Decontamination Unit.

Caithness General Hospital has a limited capacity to assist with casualties exposed to radiation, and may be contacted by the Medical Incident Officer or Ambulance Incident Officer in advance of transporting casualties to the designated hospital (Raigmore).

Where the treatment of contaminated casualties with life threatening injuries is urgent, medical personnel will take all possible measures to avoid being exposed to radiation.

11.8 Roles and Responsibilities of The Highland Council

It is likely that a number of Council Services would become involved in a major incident at Vulcan NRTE, Dounreay.

In responding to an incident at these premises, The Highland Council's roles and responsibilities may be summarised as follows:

(a) The selection of Reception Centres and the arrangements for the transportation and reception of local residents in the event of evacuation from the area at risk.

(b) Establish Radiation Screening Unit(s) operated by Medical Physics personnel from NHS Highland and/or UKAEA/Vulcan NRTE, when required.

(c) To provide assistance and resources to the emergency services and other organisation, as requested by them.

(d) To liaise with emergency services and other organisations engaged at the scene.

(e) Co-ordination of emergency and other organisations during the recovery phase of the incident.

(f) Re-house evacuees as/if required.

11.9 Roles and Responsibilities of Scottish Water

In responding to an incident at Vulcan NRTE Scottish Water responsibilities may be summarised as follows:

- Assess the risk of contamination of the public water supply.
- Arrange and co-ordinate sampling and analysis of public water supplies in conjunction with SEPA/Health Protection Agency.
- Assemble information on the level of contamination of public water supplies.
- Assess the risk to the public health from contaminated water supplies in conjunction with the NHS Boards.
- Take measures to minimise the risk to public health from contaminated water supplies.
- Provide advice to customers on public water supplies in accordance with Public Health Guidelines.
- Where there is a failure in the public water supply, Scottish Water will arrange for alternative supplies of drinking water.

11.10 Roles and Responsibilities of the Scottish Environment Protection Agency

- SEPA has a broad role under the Environment Act 1995 to protect and enhance the Scottish environment.

- SEPA is responsible for the administration and enforcement of the Radioactive Substances Act 1993. Under the Act SEPA is responsible for the authorisation of radioactive discharges and disposals from the site.

- SEPA maintains an independent monitoring regime for the radioactivity in food and the environment around the site and following an incident may make environmental measurements in support of it's function.

- SEPA will, if requested, provide advice to government on sampling and measurement of radioactive contamination in the environment, potable and surface waters, and the food chain.

- SEPA will advise on and authorise the disposal of any radioactive wastes arising as a result of an incident, and if appropriate, will advise on any off site decontamination undertaken in the remediation phase.

- SEPA maintains and operates the RIMNET system in Scotland and will ensure that monitoring data sent to the SEPA Emergency Control Centre is added onto the RIMNET system.

11.11 Roles and Responsibilities of The Scottish Executive

The creation of a Scottish Parliament and the establishment of the Scottish Executive heralds a new era in the government of Scotland. These new ways of working are shaped by clear statements of our aim, vision and values. The roles and responsibilities of The Scottish Executive following a major incident at Vulcan NRTE will follow these general aims and principles.

Aim To work with Scottish Ministers to improve the well being of Scotland and its people.

Vision Our vision is of an organisation which:

- Earns respect and trust
- Promotes Scottish interests
- Is open and in touch
- Works together
- Works with and learns from others
- Ensures high quality services
- Makes the best use of resources
- Values its people

Values Civil Servant values are

- Integrity and honesty
- Objectivity
- Political impartiality
- Fairness

11.12 Roles and Responsibilities of Orkney Islands Council

In the event of a major incident at Vulcan NRTE the Orkney Islands Council roles and responsibilities may be summarised as follows:

- Assist in any notification of the public;
- Provide assistance and resources to the local emergency services if required;
- Liaise with the emergency services, government departments and other relevant organisations;
- Co-ordinate the recovery phase of the incident and/or effects in the Orkney Islands.

11.13 Roles and Responsibilities of NHS Orkney

Responding to medical emergencies is a normal feature of the Orkney Health Board. The normal work of the Orkney Health Board encompasses primary health care and the protection of public health.

Responding to an incident at Vulcan NRTE, NHS Orkney's responsibilities may be summarised as follows:

- Care of those affected by the incident;
- Provision of public health advice;
- Provision of psychological support to people who may be affected by the incident.

11.14 Roles and Responsibilities of the Food Standards Agency

The Food Standards Agency's role will be to ensure that the public is protected from contaminated food following a nuclear emergency. Specific responsibilities are as follows:

- To determine the level of any contamination of the food chain.
- To take action to ensure that food contaminated to unacceptable levels does not enter the food chain.
- To provide advice and information to the public and relevant organisations .
- To take legal measures to prevent unacceptably contaminated food entering the food chain by the implementation of emergency restriction orders under the Food and Environment Protection Act 1985. Such orders are commonly referred to as FEPA Orders, and they restrict the supply, movement or sale of produce from an affected area.
- To ensure, in conjunction with SEERAD and other relevant organizations, the enforcement of any emergency orders.
- To ensure, in conjunction with the Scottish Environment Protection Agency and Local Authorities, the safe disposal of contaminated food.
- To ensure that subsequent remediation takes account of food safety issues.

11.15 Roles and Responsibilities of Nuclear Installations Inspectorate

NII's response will be led and managed by the NII Response Centre Director.

NII will ascertain the facts surrounding the emergency, assess the safety of the affected site, including licensee's or operator's proposed actions. Provide independent information/advice. Formulate NII Strategy and response.

NII Site Team will:

- represent NII at or near the site.
- ascertain the facts on the emergency including establishing the adequacy of actions taken to secure a safe plant state and the advice given to authorities off-site,
- submit routine reports on event to the NII Response Centre.

NII Strategic Co-ordinating Centre (SCC) Team will:

- consider all aspects of the emergency which affect the site;
- provide advice to the Strategic Co-ordinating Centre (SCC) Management Team;
- provide advice and support to the NII Response Centre Director.

11.16 Roles and Responsibilities of the Health Protection Agency (HPA) – Radiation Protection Division (RPD)

In the event of a major incident at NRTE Vulcan, RPD's role and responsibilities are summarised as follows:

- Advise the GTA, HAG, RWG, TMAG and SCG on radiological protection issues and countermeasures to protect the public in both the emergency and recovery phases.
- Assess the radiological impact of the incident to the public.
- Provide support to NHS Highland in activities to monitor members of the public for radioactive contamination and radiation exposure.
- Support SEPA in its environmental monitoring role.
- Through RPD's Monitoring Co-ordination Team at its Chilton Headquarters co-ordinate off-site monitoring beyond the sites responsibilities using monitoring resources that are made available to it by other organisations.
- Provide public information on radiation, its effects and the radiological impact of the incident within the context of this plan and in co-operation with the SCC and MBC and within frameworks set out in Dealing with Disasters Together and the NEPLG Consolidated Guidance.

SECTION 12 : CONSEQUENCE MANAGEMENT

The response to most major incidents will essentially be in two phases.

12.1 Emergency Response Phase

The emergency response phase covers the actions taken to immediately minimise the consequences of the incident to the local populace and the environment. This phase will normally be co-ordinated by the Chief Constable.

12.2 Recovery Phase

The recovery phase is harder to define due to the extensive variety of potential circumstances resulting from an incident.

It is normally defined as the extended period, beyond the emergency response phase, when actions are taken to protect the public and the environment from longer term risks and promote an early return to normal life. In certain circumstances this may not necessarily equate to a restoration of pre-accident conditions.

The boundary between the two phases cannot be rigidly defined and preparations, in the form of consequence management, for the recovery from an incident forms an integral part of this emergency response plan.

This phase will be co-ordinated by the Chief Executive, Highland Council.

12.3 Aims of Consequence Management

To initiate preparations, as an integral part of this Emergency Response Plan to mitigate the initial effects of the incident and facilitate the transition to and actions required during any recovery phase.

To protect the public and the environment from longer term risks and promote an early return to “normal” life.

TERMS OF REFERENCE FOR CONSEQUENCE MANAGEMENT

12.4 Principles of Justification and Optimisation

The principles applying to recovery activities as a result of any incident should follow these recommendations:

(a) "the proposed intervention should do more good than harm, ie. the reduction in detriment should be sufficient to justify the harm and costs, including social costs, of the intervention, (**the justification of intervention**)".

(b) "the form, scale and duration of the intervention should be optimised such that the benefit of the intervention should be maximised (**the optimisation of intervention**)".

Generally, Consequence Management should:

- propose options for consideration and prepare plans for their implementation;
- identify priorities, timescales and costs for the options being considered;
- identify a strategy for public consultation and involvement;
- advise on, and assess, recovery monitoring so as to ensure that objectives and targets are being achieved;
- identify the extent and nature of any contamination;
- identify options and strategies for clean up and disposal of wastes;
- identify where applicable, options and strategies for long term re-location/re-housing of evacuees;
- maintain records and costs of recovery actions and provide briefing and information as necessary.

12.5 Organisation of Consequence Management

During the Emergency Response Phase, the command and control of the incident will be as documented.

A Joint Recovery Advisory Group (JRAG) will be established during this phase to initiate actions and prepare for the longer term effects of the incident.

12.6 Liaison

The group will initially input directly with the command and control organisation in the SCC and prepare to continue to operate through the recovery phase where they will integrate into the consequence management organisation under the Chairmanship of the Chief Executive of Highland Council.

CHAIRMANSHIP OF THE JOINT RECOVERY ADVISORY GROUP

The Group will be chaired by:

The Head of Environmental Health, Highland Council or a nominated deputy.

12.7 Location

When called together, the group will operate initially within the SCC and subsequently from the Highland Council Emergency Centre, Mackintosh Road, Inverness.

12.8 Membership

Composition of the Group

There will be a core membership and depending on the nature of the incident additional representatives from the optional members list will be seconded.

Core Members

Environmental Health, Highland Council

Police

NHS Highland

SEPA

Health Protection Agency – Radiation Protection Division

MoD

Operator (Rolls-Royce)

Food Standards Agency (FSA)

Optional Members

Forestry Commission

Health & Safety Executive (HSE)

Housing Service, Highland Council

Marine and Coastguard Agency (MCA)

Ministry of Defence (MoD)

National Farmers Union (NFU)

Nuclear Installations Inspectorate (NII)

Scotrail

Scottish Executive Environment and Rural Affairs Department

Scottish Natural Heritage (SNH)

Scottish Society for the Prevention of Cruelty to Animals (SSPCA)

Scottish Water

Trading Standards, Highland Council

Utilities (gas, electricity, telephone etc)

Waste Management, Highland Council

Membership of the Joint Recovery Advisory Group will be kept under review, by the Chairman, as the number of organisations needing to be involved will change as work progresses.

12.9 Issues during the Recovery Phase

Issues during the recovery phase may include:

a. Immediate concerns:

(1) Areas affected.

(2) Number/types of properties (residential, schools, businesses).

b. Priority actions:

(1) At risk groups (elderly, disabled, schools, etc)

(2) Cordons/security/public access to contaminated areas.

(3) Public health issues (Health Authority)

(4) Media/press advice.

c. Decontamination/clean-up issues:

(1) Recovery category countermeasures options (Health Protection Agency /Cats A-C)

(2) Decontamination options (Health Protection Agency)

(3) MoD support:

A. Specialist plant, equipment and manpower.

B. Disposal of radioactive waste.

C. Cost control mechanisms.

d. Relocation Issues:

(1) Identification of affected properties.

(2) Priorities/timescales.

(3) Livestock and personal effects.

(4) Emergency housing implications (external LA support).

e. Long-term relocation considerations:

(1) Accommodation.

(2) LA support arrangements (benefits/counselling etc).

(3) Update bulletins (PR).

(4) Phased reoccupation priorities.

(5) Demolition of seriously contaminated homes (rebuild implications).

(6) Collation of evidence for public enquiry.

(7) Appeal funds.

(8) VIP visits/memorial services (Royals etc).

f. Miscellaneous Issues:

(1) Finance/compensation claims.

(2) Effects on tourism.

(3) Specialist helplines.

12.10 Effectiveness of Recovery Countermeasures

Health Protection Agency 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 accident.

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.

c. **Category C** Those measures that are either poorly dose-effective or only moderately dose-effective and incur significant disruption and/or resources.

12.11 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 fact 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, Rotovating & 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 (ie. Where deposition has occurred in spring or summer under dry conditions and where there is a high density of tress 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.

SECTION 13: HEALTH ADVISORY GROUP (HAG)

13.1 Should a major incident require a Strategic Co-ordinating Group to be established, the Chair of that group would seek advice from a Health Advisory Group, on health matters.

13.2 The Director of Public Health, or a nominee will be responsible for establishing and chairing a Health Advisory Group, to address any threat to public health, including communicable disease, chemical, biological, radiological or nuclear incident hazards.

13.3 The Chair of the Health Advisory Group will attend all Strategic Co-ordinating Group meetings, to present the Group's advice to the Chair of the SCG. This will require co-ordination of the timing and time management of each group.

13.4 The core representation on the Health Advisory Group will be:

Director of Public Health or nominated deputy - NHS Highland - Chair

Consultant in Communicable Disease Control - NHS Highland

Environmental Health Officer - Highland Council

Health Protection Agency – Radiation Protection Division

FSA

SEERAD

Scottish Water

Additional members with particular expertise may be co-opted on to the group, to address issues arising from a specific threat.

13.5 The Health Advisory Group will:

a) take advice on health aspects of the incident from a range of experts, including SCIEH
b) provide advice to the Chair of the Strategic Co-ordinating Group on the health consequences of the incident including those relating to evacuation or shelter
c) agree with the Strategic Co-ordinating Group, the advice to be given to the public on the health aspects of the incident, and the method of delivery
d) maintain a written record of decisions made by the HAG, and the reasons for those decisions
e) liaise with the Scottish Executive Health Department, and other Health Boards
f) formulate advice to health professionals in hospitals, ambulance service and general practice
g) formulate advice on the strategic management of the health service response
h) instigate any health related investigation measures necessary
i) participate in the consequence management phase, and take responsibility for co-ordinating more detailed assessment of an immediate health impact.

The Highland Council
Comhairle na Gàidhealtachd

Map showing area from Strathy to the Dounreay Site

(REPPIR)

(79)

Map showing area from Dounreay Site to Thurso

(REPPIR)

(80)

APPENDIX 3 (A)

PROCEDURE FOR CLAIMS FOR INJURY, DAMAGE OR LOSS

In the event of nuclear injury or damage arising during the operation of NRTE Vulcan, the following general arrangements will apply to the handling of claims or compensation:

(a) The Ministry of Defence will deal with claims under the principles for nuclear injury or damage (including the sole and absolute liability of the operator) established by the Nuclear Installations Act 1965.

(b) Claims by third parties are to be addressed to the Ministry of Defence, MoD PLLS Claims, First Avenue House, LONDON. There is no set form for making claims. Full details of the circumstances will be required, and special instructions will be issued to the public as necessary. (Crown servants on duty should report any nuclear injury to their parent department).

(c) Claims arising in connection with special public safety measures taken (eg. under arrangements made by representatives of Government Departments or Local Authorities in relation to milk, foodstuff, growing crops or animals), should be submitted in accordance with paragraph b. above and should be supported by detailed statements certified by the official or representative by whom instructions were issued or from whom instructions (e.g. as to disposal of produce) were received. There are statutory powers under FEPA to restrict the distribution of foodstuffs, authorised officers of local Authorities have powers under the Foods Safety Act 1990 to seize food intended for sale for human consumption but unfit for such sale and to bring it before a Sheriff or Justice of the Peace who may condemn it and order it to be destroyed or so disposed of as to prevent it being used for human consumption. It might not always be possible to deal with an emergency rapidly enough under these powers, and restrictions on the use and sale of foodstuffs, etc, will if necessary, be imposed by Governmental Administration action in co-operation with various local bodies and agencies. This action is covered by the statutory power contained in the Food and Environmental Protection Act 1985 which empowers the Scottish Ministers to investigate incidents involving an escape of substances (including radioactivity) and, if there is a possibility that the safety of food may be at risk, to make emergency Orders prohibiting various activities, including the movement of food or anything from which food could be derived, in designated areas of land or sea within Scottish fishery limits. Scottish Ministers may authorise investigation and enforcement to assist him in carrying out these functions.

(d) Director of Public Health and other local Officers may be required to act on the instructions of the Naval Officer-in-charge or of the Regional Representative of the relevant Government Department. In doing so, they will be regarded as the agents of HM Government (with the support of the Ministry of Defence) in any matter of liability arising from the discharge of the duties involved.

APPENDIX 3 (B)

REGISTRATION OF CIVILIANS IN AN AREA AFFECTED BY RADIOACTIVITY

If radioactivity affects areas outside MoD property, it may be necessary to arrange for civilians in the affected area to register so that it is possible to prove their presence in an affected area in connection with subsequent compensation claims. If it is considered that the circumstances of any particular accident warrants this step, the Ministry of Defence will make the necessary arrangements for the forms to be made available through local post offices.

When the decision to issue registration forms is taken, release of the following public announcement will be authorised by the Ministry of Defence:

DRAFT PUBLIC ANNOUNCEMENT FOR PRESS AND BROADCASTING IN THE EVENT OF A NUCLEAR REACTOR ACCIDENT

"There has been an accident on the NRTE Vulcan Site operated by the Ministry of Defence which has led to a release of radioactivity affecting the following areas ……..…….

Radioactivity can have effects which do not always show themselves immediately, and a person who considers that he or she may have been affected as a result of the radioactivity released can make a claim within 30 years of the accident.

Any person would, of course, have to prove that they were in the affected area at the time and this might be very difficult to do many years afterwards.

The Ministry of Defence has, therefore, set up a register, and anyone who was in the area at the time can apply to be registered. The inclusion of a name in the register will not **prove** that the person was here, but it will provide evidence that the person was, and this can be disputed only if other evidence was produced which showed that the person was not.

Anyone who was in the area between …….. and ……. …..on …….. whether they lived there, or were there only temporarily, may apply for registration on a form, which can be obtained from any post office in the area for the next month or from the Ministry of Defence.

The following points should be particularly noted:

(a) A separate form should be filled in for each person who wishes to register.

(b) Forms can be obtained only from post offices in the affected area or from the Ministry of Defence.

(c) The function of the post office in this matter is purely and simply that of a distributing agency and ALL QUESTIONS ABOUT THE FORM MUST BE ADDRESSED TO THE MINISTRY OF DEFENCE, NUCLEAR POLICY AND SECURITY (BRANCH), MAIN BUILDING, WHITEHALL, LONDON SW1A 2HB".

APPENDIX 4 (A)

LETTER TO ALL OCCUPIERS OF AGRICULTURAL HOLDINGS PRODUCING MILK WITHIN THE MILK PRODUCING AREA

Tel No (as appropriate)

Food Standards Agency
(Address as appropriate)

Date ……

Dear Sir

ACCIDENT ON THE VULCAN NRTE SITE – RESTRICTIONS ON THE USE OF MILK

Your farm is within the area to which restrictions on the use of milk for human consumption has been applied.

Until further notice milk produced on your farm must not be used for human consumption, nor may it be processed for butter or cheese.

Your milk may/may not be fed to livestock.

If you sell directly to a milk wholesaler or dairy company the milk will be collected as usual and all contaminated milk will be disposed of. You will be paid for it as usual.

If you produce milk for your own consumption only, then you should dispose of it by burying it in a trench specially dug for the purpose. The trench should be dug below the level of the farm buildings and sufficiently deep to provide a soakway. Care should be taken to ensure that water supplies can not be contaminated. Milk must not be discharged directly into streams.

If you normally produce and sell milk by retail directly, then SEERAD will arrange to collect and dispose of it during the period covered by the restrictions.

You will be informed by letter as soon as these restrictions can be removed. In the meantime, arrangements are in hand to import uncontaminated milk into the area for human consumption and supplies can be obtained from any milk retailer. Please notify your workers of this arrangement. Whilst the restrictions on the use of milk lasts, dairy cows must not be moved or brought to your farm without special permission from this Department.

Personnel who suffer financial loss as a result of the foregoing instructions will be informed as soon as possible of arrangements made for their compensation.

Yours faithfully

Principal Agriculture Officer

APPENDIX 4 (B)

STAND DOWN NOTICE TO FARMERS

Tel No (as appropriate)

Food Standards Agency
(Address as appropriate)

Date ……

Dear Sir

ACCIDENT ON VULCAN NRTE SITE – REMOVAL OF RESTRICTIONS MILK

With reference to the restrictions on the use of milk produce on your farm given in the Departments letter of …… I am please to inform you that so far as your farm is concerned there is no longer any danger resulting from the recent accident and the restrictions placed on milk produced on your farm are now lifted.

Similarly, the restrictions on movement of dairy cows to or from your farm is removed.

Yours faithfully

Principal Agriculture Officer

APPENDIX 4 (C)

NOTICE TO FISHERMEN AND OWNERS OF FISHING VESSELS

Tel No (as appropriate)

Food Standards Agency
(Address as appropriate)

Date: ……..

Dear Sir/Madam

ACCIDENT ON VULCAN NRTE SITE – RESTRICTIONS ON FISHING
CLOSURE ORDER UNDER THE FOOD AND ENVIRONMENT PROTECTION ACT 1985

I am writing to inform you that there has been an incident/accident on the Vulcan NRTE Site at (name of area or precise co-ordinates). As a consequence the Food Protection (Emergency Prohibitions) (Pollution of Fish) Order 199( ) came into force at ( ) hours on (date, month, year). The landing and use in the production of food or fish taken from the designated area after one minute past midnight on (date, month, year) is prohibited.

The Order designates an area within which fishing and taking fish is prohibited and prohibits the movement of fish out of that area (see maps/charts attached). Other restrictions are imposed throughout the United Kingdom including the use or supply of fish taken from that area.

You will be informed by letter as soon as these restrictions can be removed. Please ensure that the crew(s) of your vessel(s) are advised of these restrictions.

Yours faithfully

APPENDIX 4 (D)

NOTICE TO FISHERMEN AND OWNERS OF FISHING VESSELS

STAND DOWN NOTICE

Tel No (as appropriate)

Food Standards Agency
(Address as appropriate)

Date:

Dear Sir/Madam

ACCIDENT VULCAN NRTE SITE
REMOVAL OF RESTRICTIONS ON FISHING

I refer to the restrictions on fishing brought in by the Food Protection Emergency Prohibitions (Pollution of Fish) Order 199( ) details of which were given in the Agencies letter of……..

I am pleased to inform you that the restrictions of the taking and landing of fish from the designated area were lifted from one minute past midnight on (date, month, year).

Yours faithfully

APPENDIX 5 (A)

STABLE IODINE (POTASSIUM IODATE) TABLETS

Nuclear Incidents

- If there is a nuclear incident various radioactive materials may be released. Most radioactive substances can be kept away from the body be sheltering – going indoors and shutting doors and windows.

- Radioactive Iodine is one of the substances which may be released following a nuclear reactor accident. It can enter the body by breathing in contaminated air.

- Iodine, whether radioactive or in any other form quickly enters the bloodstream and travels to the thyroid gland in the neck where it remains for some time.

Preventing Thyroid Cancer

- The increased risk of thyroid cancer can be greatly reduced by taking SITs. (This will ensure that your thyroid gland will absorb non-radioactive iodine and therefore will minimise any uptake of radioactive iodine).

- A significant number of children in the area around Chernobyl have developed thyroid cancer because they were not given SITs following the nuclear incident in 1986.

Who should take SITs?

- The radioactive iodine level in the air can be measured and if it is raised you will be asked to take SITs.

- Everyone in the affected area (called the Pre-planned Countermeasures Zone) should take SITs as soon as possible once they are told to do so. Babies, babies, toddlers and children will get most benefit.

- By having SITs in your house there will be no delay should you be asked to take the tablets.

- Take the SITs dosage once only unless otherwise advised.

DOSAGE

- Adults (everyone aged 13 years and over) - 2 tablets
  (including pregnant women and women breast feeding)
- Children aged 3 – 12 years - 1 tablet
- Children aged 1 month – 2 years 11 months - Half a tablet
- Newborn babies (0 – 1 month) - Quarter of a tablet

NHS Highland and the Ministry of Defence will ensure that your supply of SITs will always be kept in date.

Side-effects of SITs

- The World Health Organisation has reviewed the use of SITs which were distributed extensively in Poland after the nuclear incident at Chernobyl. No serious side-effects were reported. There were some stomach upsets and skin rashes. The risk of getting one or the other of those side-effects was less than 1 in 10 million for children and less than 1 in 1 million for adults.

APPENDIX 5 (B)

DOSE LEVELS FOR EMERGENCY SERVICES PERSONNEL ATTENDING AT A RADIATION INCIDENT UNDER REPPIR

Responsibility
The responsibility for authorising the use of emergency dose levels will lie with the Officer in Charge, and decisions will be taken in consultation with health and/or medical physics personnel and an authorised person from the operator.

Application
All doses received by emergency services personnel should always be as low as reasonably practicable. However, during a radiation emergency as defined by REPPIR (Regulation 15), the dose limits described in IRR99 (Regulation 11) do not apply and therefore emergency dose levels have been adopted by the emergency services as described below. The figures given are intended as upper values only.

Emergency Service workers will only be allowed to receive emergency exposures for the purposes of:

saving life;
helping endangered people;
preventing large numbers of people from being exposed to ionising radiation; or
saving valuable installations or goods.

Emergency Dose Levels

Highland and Islands Fire Brigade
It is permissible for a male firefighter to receive up to the following emergency dose level during a radiation emergency under REPPIR where intervention will prevent the situation developing into a catastrophe, or if a life can be saved. Female firefighters of reproductive capacity will work to the lower dose limits described in IRR99 and will not work to these emergency dose levels.

Effective dose:	**100 mSv**

Scottish Ambulance Service
Where an Ambulance Service worker is involved in the interventional stage of an incident, they may receive up to the following emergency dose level.

Effective dose:	**100 mSv**
Equivalent dose to skin:	1000 mSv
Equivalent dose to eye lens:	300 mSv

For the purposes of saving a life, it may be decided in exceptional circumstances that it is desirable to apply the following maximum dose levels.

Whole body dose:	**500 mGy**
Dose to skin:	5000 mGy

Northern Constabulary
No police staff are to be subjected to emergency exposures of radioactivity in the event of an incident. Therefore Northern Constabulary officers and staff will work to the public dose limit of:

Effective dose:	**1 mSv**

APPENDIX 6

ABBREVIATIONS

CPHM	CONSULTANT IN PUBLIC HEALTH MEDICINE
DPHM	DIRECTOR OF PUBLIC HEALTH MEDICINE
EC	EMERGENCY CENTRE
EPO	EMERGENCY PLANNING OFFICER
ERL	EMERGENCY REFERENCE LEVEL
FCP	FORWARD CONTROL POINT
FSA	FOOD STANDARDS AGENCY
GTA	GOVERNMENT TECHNICAL ADVISOR
HPA	HEALTH PROTECTION AGENCY
ICP	INCIDENT CONTROL POINT
IO	INCIDENT OFFICER
MBC	MEDIA BRIEFING CENTRE
MCA	MILITARY CO-ORDINATING AUTHORITY
MIO	MEDICAL INCIDENT OFFICER
NABUST	NAVAL BACKUP SUPPORT TEAM
NEMT	NAVAL EMERGENCY MONITORING TEAM
PDA	PRE DETERMINED ATTENDANCE
RVP	RENDEZVOUS POINT
SCC	STRATEGIC CONTROL CENTRE
SEER	SCOTTISH EXECUTIVE EMERGENCY ROOM
SEERAD	SCOTTISH EXECUTIVE ENVIRONMENT AND RURAL AFFAIRS DEPARTMENT
SEPA	SCOTTISH ENVIRONMENT PROTECTION AGENCY
SMT	SITE MEDICAL TEAM

GLOSSARY OF TERMS

Approved Dosimetry Service. (ADS)	The legally approved service for the provision and processing of personal radiation monitoring devices.
Automatic Countermeasure Distance (ACMZ)	550 meters from the submarine. In the event of an accident all personnel within this distance are either evacuated outside it or sheltered within it prior to subsequent evacuation. These arrangements are automatic within a pre-arranged site plan, and include the administration of stable iodine.
Becquerel (Bq)	Unit of quantity of radioactive material. 1 Bq = 1 disintegration per second.
COMCEN	Communications Centre.
COMPLAN	Communications Plan.
Contamination	Deposited radioactive particles.
CNNRP	Chairman Naval Nuclear Regulatory Panel.
Core	The region of a reactor containing fuel within which the fission reaction is occurring.
Crud	Radioactive impurity deposits inside a reactor or its coolant circuit.
Decontamination	Removal of radioactive material from a person or surface.
Dose of Radiation	Radiation doses may be the “absorbed dose” which is the amount of energy deposited in a unit made by ionising radiation’s, or the “equivalent dose” in which the absorbed dose is multiplied by a radiation weighting factor which takes account of the varying degree of biological damage caused by different radiation’s.
Down Wind Sector	Normally refers to the sector 15° either side of the prevailing wind direction downwind of the site.
DERA - RPS	DERA - Radiological Protection Service.
Effective Dose	
Emergency Reference Level (ERL)	Range of radiation doses below which countermeasures carry more risk than the dose, and above which countermeasures are always required.
Exclusion Zone	The prototype reactor assembly area during an incident.

FOSNNI	Flag Officer Scotland, Northern England and Northern Ireland.
Fuel	The enriched uranium fabricated for use in the core. Fuel and cladding together comprise FUEL ELEMENTS.
Gamma Radiation	High energy electro-magnetic radiation of considerable penetrating power emitted by most radioactive substances.
Gamma Shine	The gamma radiation emanating from the reactor compartment of a submarine following a reactor accident.
Going Critical	The process of withdrawing the Control Rods from the reactor in a highly controlled manner to increase the rate of fission, hence power, until self-sustaining condition is reached.
Half-Life	Period of time within which half the nuclei in a sample of radioactive material undergoes decay.
IC	Incident Commander.
Iodine	As Iodine 131, biologically hazardous fission product of short half life (8 days) which tends to accumulate in the thyroid gland.
MCA	Military Co-ordinating Authority.
NABUST	Nuclear Accident Back-up Support Team.
NARO	Nuclear Accident Response Organisation.
NEMO	Nuclear Emergency Monitoring Organisation.
NEMT	Nuclear Emergency Monitoring Team.
Neutron	Uncharged particle, consistent of nucleus – ejected at high energy during fission, capable of being absorbed in another nucleus and bringing about fission.
Pasquill	Weather categories.
PITS	Potassium Iodate Tablets – also known as Stable Iodine Tablets (SITs).
Plume	Airborne contamination in downwind sector.
Pre-planned Countermeasure Zone	An area out to 2km from the site.
PRO (C)	Public Relations Officer (Clyde).
PWR	Pressurised Water Reactor.
Radiation	Neutrons, Alpha and Beta particles or Gamma Rays which are emitted from radioactive substances.

Radioactivity	Behaviour of substance in which nuclei are undergoing transformation and emitting radiation. It is measured in the number of disintegration's per second.
RC	Reactor Compartment.
RPV	Reactor Pressure Vessel.
RR Group	Rolls Royce Group.
Shielding	Material such as concrete, lead, special constructed polythene or water which attenuates radiation and reduces its intensity.
Shutdown	The reactor state when all the control rods are fully inserted.
Sievert (Sv)	Unit of both effective dose and equivalent dose.
SITs	Stable Iodine Tablets – also known as Potassium Iodate Tablets (PITs).
SLO	Site Liaison Officer.
Steam Generator	Boiler in which hot coolant from the reactor core raises steam to drive propulsion machinery and turbo generators.
SRD	Safety and Reliability Directorate (SERCO).
STF	Shoreline Test Facility (Reactor Building).
Sub Critical	A reactor is sub-critical when the fission rate is insufficient to maintain a self-sustaining chain reaction.
TLD	Thermoluminescent Dosimeter - a radiation monitoring device for use by individual personnel or for monitoring the environment.
UHF	Ultra High Frequency.
VHF	Very High Frequency.
Whole Body Radiation Dose	The total radiation dose to the body received from all sources.