UKAEA Dounreay

Off-Site Emergency Plan

REPPIR

April 2005

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REVIEW RECORD

Review Date	Comments	Date of Next Review
April '05		April '06

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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 UKAEA Dounreay Site.

This plan is intended as an initial response document only. Once an incident has developed, each agency would then refer to its own generic plan to ensure that its 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 UKAEA, 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 creation, 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 release of radioactive, chemical or toxic material(s) at UKAEA Dounreay.

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

This is a copy of the report to the Nuclear Installations Inspectorate (NII) of the hazard identification and risk evaluation for the UKAEA Dounreay licensed site as required under regulation 6(4) of The Radiation (Emergency Preparedness and Public Information) Regulations 2001.

Section 2 gives the location and brief description of the site. Section 3 lists the major radionuclide inventories on site and Section 4 the safety controls designed to ensure that there are no major releases of radioactivity from the site. The sequences that could lead to a release of radioactivity from site are described on Page (8) and the implications of such releases on Page (9). Section 2.18 gives a summary and can be found on Page (11).

2.1.2 Location and Environment

2.1.2.1 The operator of the Dounreay Licensed Nuclear Site is:-

UKAEA
B521 Harwell
Didcot
Oxfordshire
OX11 0RA

2.1.2.2 The postal address of the premises is:-

UKAEA
Dounreay
THURSO
Caithness
Scotland
KW14 7TZ

2.1.2.3 The Local Authority is:-

The Highland Council
Glenurquhart Road
INVERNESS
IV3 5NX

UKAEA Dounreay is a Nuclear Licensed site located approximately 12km west of Thurso. The Nuclear Licensed site is some 54 hectares in area and is built on the site of a former Admiralty airfield and adjacent farmland.

The Vulcan Naval Reactor Test Establishment (NRTE) is located immediately west of the UKAEA Dounreay Licensed Nuclear Site. The boundaries of the UKAEA Dounreay licensed site and Vulcan NRTE are as indicated in at Page (12).

Over the first 20 years that the site was opened, three reactors were built – the Dounreay Fast Reactor (DFR), Prototype Fast Reactor (PFR) and the Dounreay Materials Test Reactor (DMTR). All are now closed and being decommissioned.

Management at the site is now focussed on decommissioning of the reactors, ancillary nuclear facilities and the restoration of the environment.

Aqueous discharges are via a pipeline discharging into the Pentland Firth.

Airborne discharges are via designated stacks.

The site is subject to regular inspection and approval by the HSE's Nuclear Installations Inspectorate (NII).

The site has been operational since 1955.

Page (17) shows the pre-planned countermeasure zone around the site. Within this 5km zone there are approximately 200 households (a permanent population of about 550 people), including:

- Reay village;
- Achvarsdal care home.

Also within the 5km zone are:

- Reay Primary School;
- Reay Golf Course;
- Dounreay Visitor Centre;
- Vulcan NRTE (an MoD shore-based submarine reactor test establishment).

The prevailing wind direction is north westerly.

The underlying bedrock at Dounreay is primarily Devonian sandstone and geology is particularly stable. Dounreay is, therefore, less susceptible to significant seismic events as is the case elsewhere in the UK.

A stream, the Mill Lade, flows south to north through the Dounreay site to the Pentland Firth. Groundwater flow is towards the Mill Lade and towards the north coast.

Two fuel reprocessing plants have operated at Dounreay for the recovery of fissile material from irradiated nuclear fuel. Both are now shut down, undergoing post-operational clean out in preparation for decommissioning.

Operations and facilities on the Dounreay site include:

- Storage of irradiated fuel;
- Storage of high active liquid waste;
- Storage of unirradiated fuel;
- Uranium fuel element production;
- Processing and storage of liquid and solid intermediate level waste;
- Processing and storage of solid low level waste.

Other processes and facilities at Dounreay are geared to support these operations.

Continued processing and manufacture of nuclear material is required to:-

- Reduce the holdings of fissile material on-site;
- To convert radioactive waste holdings to a form suitable for long-term storage
  In accordance with HM Government Policy.

2.2 Radioactive Substances on Site

The diverse nature of operations on the Dounreay Site has resulted in the presence of a wide range of radioactive materials, including uranium, plutonium, fission products and neutron activation products. The on-site inventories of radioactive and fissile material have been assessed by the Dounreay Site Restoration Plan [7]. The main parts of the site radioactive material inventory are as follows:

- Irradiated Fuel
- Unirradiated Fuel
- High Level Waste
- Intermediate Level Waste

These sources of radioactivity are controlled and are stored on site. Permitted discharges and waste disposals to the environment associated with the work of the site are controlled in accordance RSA93, and are governed by Authorisations issued by the Scottish Environment Protection Agency (SEPA).

All discharges are a small fraction of the authorised limits agreed with SEPA.

Dounreay has an established history of nuclear operations, which will continue for some time as the Dounreay Site Restoration Plan [7] is implemented. The on-site inventory will reduce over the next 50-60 years as material is moved off-site for disposal, storage or processing in accordance with HM Government Policy. After that time, any remaining radioactive material at Dounreay will have been processed and packaged into a non-dispersible, and hence in a passively safe, form suitable for long term storage.

Dounreay stores or processes nuclear material in quantities that exceed Schedules 2 and 3 of REPPIR [5]. It is, therefore, concluded that facilities and operations at Dounreay must be assessed under REPPIR and that the provisions of that Act fully apply.

2.3 Safety Controls

Any plant commissioned in the UK must be supported by a safety case that demonstrates:

- that the plant is safe in normal operation;
- that the design is robust enough to ensure that any departures from normal operation do not lead to accidents, and
- that provisions are made to intercept accidents as they develop or to mitigate their consequences.

The design of the plant is based upon the fundamental requirement of radiological safety to do all that is reasonably practicable to minimise operational doses, risks and the initiation of abnormal events. The last factor requires consideration of how to prevent deviations from the planned normal operations escalating to major accidents. This is achieved by careful design with redundancy, diversity and segregation of safety functions to minimise dependencies between the protective systems, which deal with deviations from the planned operating envelope. Further, mitigation is applied to minimise, so far as is reasonably practicable, the consequences of any accident. Hence there is a philosophy of having defence in depth in all nuclear plant to ensure, so far as is reasonably practicable, the safety of all people in and around the plant.

The primary design concept is to contain the radioactive material and radiation. This includes, where appropriate having material in a form which intrinsically retains radioactivity within the normal range of operational temperatures and environments. Extra containment barriers can be used to restrict the release of any radioactivity that does escape from its normal location. These barriers can be passive or dynamic. As appropriate, approved codes of practice are implemented for the design and operation of ventilation systems, decontamination systems or pressure vessels to allow work with radioactive materials without contamination of the normally manned working areas or of the wider

environment. Massive barriers are used when radiation shields are required. The maintainability and fault tolerance of these safeguards is an integral part of the design process.

There are many barriers, engineered and procedural, to ensure that the release of radioactivity to the environment is kept as low as is reasonably practicable. These ensure that the equipment used is well designed, built and maintained and is operated within its safe working range. The required number of such barriers and the types of barriers implemented are determined in accordance with the assessed hazards and risks.

2.4 Engineering Controls

All safety critical equipment is carefully designed, well built, thoroughly tested and examined, operated under carefully considered limits, maintained according to a maintenance schedule and operated within specification by trained staff. The safety arguments for the equipment and its operation are prepared by suitably qualified and experienced personnel and subjected to careful review both internally and external to UKAEA. All new equipment or changes in the operating envelope are considered by a nuclear safety committee containing external experts and as well as UKAEA representatives, including internal regulators. This committee expects all papers and designs submitted to it to have been subjected to rigorous safety assessment and Independent Peer Review.

2.5 Systematic Analysis

The UKAEA Safety Case production process provides for a systematic review process identifying the factors, which could potentially lead to a major release of radioactivity. This provides a comprehensive schedule of initiating events and analysis of the potential consequences and probabilities of each. The Safety Case process is applicable to continued operation of existing plant, modifications and new construction as well as the ultimate decommissioning of redundant facilities.

The first consideration is to do all that is reasonably practicable to avoid the initiating event occurring, or at least to minimise its likelihood. Wherever possible, nuclear facilities and processes are selected on the basis of passive intrinsic safety, such as the avoidance of high pressure or temperature processes and, wherever practicable, multiple physical containment barriers. Process design will be such that processes follow a logical sequence with potential deviations designed out.

Having done all that is reasonably practicable to prevent the initiating event from occurring there may still be some identified events with the potential to develop into a major release. In these cases further protection is provided to enhance safety. The safety philosophy ensures that protection provided is commensurate with the risks involved. Thus for potentially serious events there must be both redundancy and diversity in the methods used to identify the initiation of the fault and to bring the system back into a safe condition. These safety systems are segregated such that the likelihood of all barriers being compromised is minimised.

2.6 Detection and Mitigation

UKAEA is required to sample and monitor all radioactivity discharge points. Stack discharges are continuously monitored giving additional rapid warning of abnormal plant conditions.

Radioactive aqueous activity discharges are sampled and analysed by the originating facility prior to sentenced discharge to drain. The collected liquor is further sampled and analysed prior to discharge to sea, giving a further opportunity to detect abnormal plant conditions and to undertake appropriate remedial actions.

Furthermore, there are a number of on and off-site airborne activity and radiation monitoring stations, which again assist early detection of abnormal conditions.

Most radiation accidents will occur as a result of an identifiable plant event during a process where operational personnel are present. On-site emergency services and incident response

teams will, therefore, mobilise rapidly in accordance with established and regularly practised on-site emergency procedures.

Following a minor on-site accident, the UKAEA incident control team may deploy an off-site radiological survey team. This will verify the incident magnitude.

2.7 Management System

All designs and modifications of nuclear plant are subjected to detailed safety reviews of the engineered systems and the operating/maintenance procedures. When relevant this extends to reviewing changes to organisational structures and resources. Independent expertise is used to check major changes within the plant. The whole process is scrutinised by the Dounreay Nuclear Safety Committee.

2.8 Staffing

Each department has a team of personnel, all of whom are suitably qualified and experienced for the work which they are expected to perform. Nuclear Site Licence condition 36 requires that changes to the structure or number of employees that are utilised by UKAEA and that could impact on safety are assessed and approved by the NII.

A continuous shift system operates at Dounreay which ensures that there are adequate staff resources available at all times to operate the site safety and to deal with any emergency situations which might arise. This includes shift cover provided by a dedicated on-site full-time professional Fire Brigade and Ambulance Service, fully trained in responding to any emergency, including radiological incidents. The shift teams are supported by a callout system that ensures that additional suitably trained and appointed staff can be summoned at all times to support, augment and relieve the shift staff.

2.9 Procedures

It is a requirement of the Nuclear Site Licence that adequate quality assurance arrangements are made and implemented for all matters potentially affecting safety. These arrangements are specified in the top tier of a multi-tiered system, and define the requirements for procedures and instructions for the site as a whole. The lower levels are described below.

Dounreay Procedures apply to activities common to or involving all departments, where overall site control is required.

The top tier requirements for procedures and instructions are further developed on a departmental basis. Each head of department is responsible for the preparation and issue of sufficient procedures and instructions to adequately cover the work of their department.

Conditions for the safe operation of the plant are provided by the Safety Management Requirements, derived directly by the systematic Safety Case production process. The work needed to maintain the plant in a safe and reliable condition is specified by the maintenance schedules, which are optimised to meet the requirements demanded by the facility Safety Case.

2.10 Regulatory Control

The civil Nuclear Industry, which includes UKAEA, has a strong regulator in the NII which has an assigned Site Inspector for each licensed site. This inspector has the right to inspect any equipment or procedure at short notice and the right to require UKAEA to provide information. The NII can order the shutdown of any process that it considers unsafe.

The NII require that the safety of plant and operations is considered in a systematic manner at all stages from planning, building, operating and decommissioning and that the safety case is subject to both continuous review and formal periodic review.

2.11 Emergency Organisation

UKAEA Dounreay has emergency plans that ensure that suitably qualified and experienced people are available at all times to respond to any events that cause the various plants to deviate from their normal operating conditions. The provision of an on-site plan and suitably qualified and experienced staff to respond to unusual events further reduces the probability of a major release of radioactivity to the environment.

The UKAEA Dounreay emergency plans are agreed with the NII and exercised regularly. Emergency Planning is discussed at meetings of the Nuclear Emergency Planning Liaison Group (NEPLG) and Nuclear Emergency Arrangements Forum (NEAF) which bring together nuclear operators (including UKAEA), government bodies, independent advisors and local authorities to ensure that best practice in emergency planning is communicated to all stakeholders.

2.12 Potential Hazard Sequences

The majority of potential faults which are identified cannot result in a Radiation Emergency, by virtue of the prevention and protection provisions described as above. For significant off-site radiation exposure to be possible it is necessary that there be failures in each of the protective or mitigating barriers or controls. Significant public radiation exposure is credible only when failure of engineered systems and/or of managerial controls are compounded.

2.13 Credible Radiation Emergencies

The systematic assessment of potential hazards ensured by the UKAEA Safety Case production process results in rigorous identification and assessment of a number of bounding accidents for the Dounreay Site, in particular accident sequences with potential for public exposure >5mSv are highlighted.

With progressive shut-down and decommissioning of facilities underway on the Dounreay Site, there are now very few reasonably foreseeable accident scenarios that could lead to a REPPIR Radiation Emergency, and even those few that remain are being gradually eliminated.

- No operational reactors remain on the Dounreay Site. A serious reactor accident leading to the release of short-lived fission products is impossible. Accidents during the handling of processing of 'short-cooled' irradiated material are similarly impossible.
- Inadvertent discharges or leakage of stored liquid wastes at Dounreay cannot credibly result in a public exposure exceeding REPPIR thresholds.
- Radioactive material remains accumulated at locations on the Dounreay Site. A breach of containment could result in a release and off-site exposure >5mSv.
- Implementation of the Dounreay Site Restoration Plan requires that radioactive material be transported between facilities on the Dounreay Site. An accident during such transport is credible.
- Whilst fissile material remains at Dounreay, UKAEA is obliged to assess the possibility and consequences of a criticality accident.

There have been no operational nuclear reactors at Dounreay since shut down of the Prototype Fast Reactor (PFR) in April 1994 and hence a major reactor accident at Dounreay involving the release of short-lived fission products, in particular ^{131}I, is impossible. There is, however, such potential from the operational PWR at Vulcan NRTE.

Pre-distribution of potassium iodate tablets is unnecessary to mitigate potential Radiation Emergencies originating in Dounreay, but is required to address a potential Radiation Emergency at Vulcan NRTE. The Vulcan NRTE 2 km Pre-Planned Countermeasures Zone encompasses the Dounreay Licensed site and potassium iodate tablets have been pre-distributed to various locations on the Dounreay Site.

2.14 Implications

It is recognised that despite the careful and systematic manner in which nuclear operations are conducted, and the multiple layers of protection, there remains the remote possibility of a radiation exposure to a member of the public from an accident at UKAEA Dounreay.

The severity of a radiological accident depends upon its location, the quantity of radioactive material involved, its chemical and physical properties, its isotopic composition, the nature of the accident, the immediate response and the prevailing weather conditions.

Table 1 summarises the prediction of consequences of a Dounreay Radiation Emergency in respect of the imposition of dose aversion counter-measures in relation to the Health Protection Agency (HPA) recommended ERLs. Where the accident results in an airborne activity release, the assessment assumes Dounreay average weather conditions. Category D weather corresponds to a period with little sun with significant cloud cover and occurs about 75% of the time at Dounreay.

UKAEA policy is to undertake 'worst case' bounding assessments with consequences encompassing all reasonably foreseeable eventualities. Pessimistic assumptions would include worst case release fractions, failure of engineering system and failure to prevent escalation. Radiological consequences identified by such assessments will over-estimate reality, but are nonetheless essential to define the credible accident envelope and hence the scope of the required Emergency Plan.

2.15 Breach of Containment

A breach of containment with a fire at a facility handling radioactive material is assumed. leading to an airborne release and exposure of persons downwind, primarily via inhalation.

The bounding assessment indicates that potential consequences >5mSv extend up to 250m from the accident.

2.16 Criticality

A criticality accident in an unshielded facility would have off-site consequences >5mSv, although the shielding provided by other structures on the Dounreay Site give significant mitigation of the potential consequences.

The energy released during an initial short duration criticality burst usually disrupts the critical assembly, stopping the chain reaction and limiting actual dose uptakes.

The bounding assessment indicates that persons within 1.2km could receive a dose >5mSv, however exposure following a criticality event is highly unlikely since there would almost certainly be no ongoing nuclear reaction following the initial very short duration radiation burst.

2.17 Consequences and Requirements for Countermeasures

Radiological accidents can occur over periods varying from a few seconds to several hours, depending upon the particular circumstances of the incident and the level of damage. Accidents resulting in declaration of Radiation Emergency can reasonably be expected to last several hours with the emergency response implemented over a similar timescale. An incident duration of four hours has been assumed in formulation of the Dounreay Emergency Plan.

Table 1 indicates the bounding accidents and compares them to the REPPIR 5mSv Radiation Emergency level and derives the applicable distance for which countermeasures could be imposed by comparison with the applicable Health Protection Agency (HPA) Emergency Reference Level (ERL).

Table 1 Bounding Accident Summary – Breach of Containment

Dose Aversion Mechanism		Averted Dose Potential (mSv)	Distance from the Point of Release (m)
Shelter (CED)	Lower ERL	3	350
	Upper ERL	30	100
Evacuation (CED)	Lower ERL	30	100
	Upper ERL	300	50
Potassium Iodate Tablets	Lower ERL	No ^{131}I release potential from UKAEA Dounreay	
	Upper ERL		

In the unlikely event of a Radiation Emergency at UKAEA Dounreay, the dose to the general public can be reduced by the appropriate imposition of appropriate countermeasures including instructions to shelter, which reduces inhalation dose and direct radiation, and evacuation, which removes people from the affected area.

Since contamination may affect foodstuffs over a wide area for an extended time, it is possible that food restrictions could be imposed over a wider area than evacuation or shelter instructions.

Historically, UKAEA Dounreay has adopted a 5km radius pre-planned countermeasure zone centered upon an operational reactor. With all reactors at Dounreay now shut down and the progressive shut down, post-operational clean out and decommissioning of other facilities at Dounreay, radiological consequences of reasonably credible faults no longer demand such a large pre-planned countermeasure zone. Potential Radiation Emergencies could, however, originate from a variety of locations across the Dounreay Site and a conservative 5km radius pre-planned countermeasure zone, now centered upon the geographical centre or the Dounreay nuclear licensed site is retained (see Page (17)). This, by default, addresses all reasonably credible potential Dounreay radiological emergencies.

Implementation of a conservative 5km radius pre-planned countermeasure zone creates no significant problems for UKAEA at Dounreay:

- the area around Dounreay is sparsely populated.
- retention of a 5km radius pre-planned countermeasures zone perpetuates established offsite Emergency Arrangements.
- UKAEA Dounreay resourcing is geared to a 5km pre-planned countermeasures zone.

It is highly unlikely that any person beyond the pre-planned countermeasure zone could be exposed to a dose high enough to require prompt countermeasures to be applied, although restrictions on the foodstuffs may apply over a larger area.

The timely imposition of countermeasures would require the existence of an off-site emergency plan. It is therefore concluded that there is merit in maintaining such a plan.

Higher consequence events than those envisaged by the pre-planned countermeasure zone can be postulated, however their occurrence is not reasonably credible. Despite this, it is concluded that such events can be met by extension of the Dounreay Offsite Emergency Plan beyond the pre-planned countermeasure zone as warranted by circumstances.

2.18 Summary

Assessments demonstrate that it is extremely unlikely that there will be a Radiation Emergency at UKAEA Dounreay. The facilities on site are carefully designed, built and operated in a manner that assures safe operation.

As discussed in this report, internal scrutiny of safety and design and operation is intense and the NII is a regulator with powers to demand improvements and to shutdown operations if appropriate.

Even so it is considered prudent to have adequate emergency plans to protect the general public in the event of a Radiation Emergency. The scale of these plans is guided by the potential off-site release of radioactivity in the event of a 'bounding accident'.

The bounding accident could lead to doses in excess of 5mSv to unprotected members of the public out to a range of about 250m. Shelter and evacuation are prompt countermeasures that could be applied to reduce the dose uptake by the general public. Food restrictions initiated by the Food Standards Agency may affect a wider area and for a longer time.

Conservatively, a 5km radius pre-planned countermeasure zone is perpetuated and centred upon the geographic centre of the site to bound the requirements of all reasonably credible radiological emergencies, as is the option of implementation of short-term countermeasures further afield.

The off-site emergency plan will be maintained to ensure the timely and orderly imposition of those countermeasures that would be of benefit in the event of accidental release of radioactivity.

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

SECTION 3 : GENERAL INFORMATION

3.1 Location and Access

The United Kingdom Atomic Energy Authority (UKAEA) site at Dounreay, Caithness, is 12 km west of Thurso, on the shores of the Pentland Firth.

Grid Ref: Digital 2985 9670,
OS NC 985 670.

The site is accessed from the A836 Thurso to Bettyhill road, which passes within one kilometre of the main gate, and is bordered by a high security fence with access controlled at the main gate. Security of the site is the responsibility of the Civil Nuclear Constabulary.

The nearest centres of population to the Dounreay site are the village of Old Reay at 3 km and the villages of Reay and Shebster at 4 kilometres. (See Maps at Pages 82 and 83).

3.2 Background

UKAEA has been on its present site at Dounreay since 1955, having as it's central task the development of fast reactor technology, pioneering the efficient use of uranium fuel in the generation of electricity. This work ended in 1994 and all three reactors on the site are now shut down and being decommissioned.

A number of waste plants are continuing to operate to manage waste from the decommissioning programme with up to 20 new plants being required to eliminate all the major radiological hazards within the first 25-30 years following the Dounreay Site Restoration Plan. This plan identifies some 1500 projects required to restore the environment of the site and key objectives in the short to medium term include:

- Removal and disposal of the PFR sodium coolant
- Removal of DFR breeder fuel, disposal of sodium-potassium coolant and decommissioning of fuel pond
- Treatment plant and store for solid intermediate-level waste
- Retrieval and storage of waste from the Dounreay "shaft" and "silo"
- Solidification of high-level and intermediate-level liquid wastes
- Decommissioning of redundant fuel plants and implementation of strategy for managing inventory of nuclear fuels
- Assessment of options for managing metallic radioactive particles in the marine environment

3.3 Main Areas of Actual/Potential Danger

The principle source of hazard for the general public would be from exposure to radioactive or other toxic material contained in any external release. Fire or explosion would assist in the dispersal of such material. The likelihood of an accident, resulting in significant quantities of radioactive or toxic material being released into the environment, is remote. Nevertheless, with significant quantities of such materials used, processed and stored on site, there is always the possibility of such a release, occurring.

SECTION 4 : STATES OF ALERT

4.1 Dounreay Emergency

The result of an incident causing or liable to cause a release or spread of radioactive or other toxic material in such a way that special precautionary measures are necessary to minimise the danger to life or health of personnel within the Dounreay licensed site boundary**. This has not occurred during the history of the site.**

4.2 Off-Site Emergency

Result from a Dounreay emergency, whose effects extending beyond the Dounreay licensed site boundary may affect the general public and/or the environment.

4.2.1 'Dounreay Amber' Alert

This codeword is used to indicate that a serious incident has occurred, which has the potential to lead to an off-site emergency or where an off-site emergency is believed to be imminent. **This alert has not been declared during the history of the site.**

On receipt of a 'Dounreay Amber' this plan will be implemented in full. All three levels of command and control will continue to be implemented, including the setting up of the Strategic Co-ordinating Centre (SCC) at Inverness, unless the instruction to stand down is given.

4.2.2 'Dounreay Red' Alert

The codeword used to indicate that an off-site emergency has been confirmed is 'Dounreay Red'. **This alert has not been declared during the history of the site.**

If 'Dounreay Red' is the first alert that is received, then implementation of this plan will be made in full. All three command and control levels will continue to be implemented until an instruction to stand down is given.

If 'Dounreay Amber' has already been declared, then notification of 'Dounreay Red' will be passed to the appropriate authorities at the Strategic Co-ordinating Centre (SCC) at Inverness, if it is operating at this time.

4.2.3 'Dounreay Clear'

The codeword used to cancel a 'Dounreay Amber' alert or a 'Dounreay Red' alert is 'Dounreay Clear'.

SECTION 5 : COUNTERMEASURES

5.1 Introduction

The UKAEA Dounreay pre-planned countermeasure zone is a circular zone extending to 5 km around the site.

If a 'Dounreay Amber' alert is declared, advice relating to the safety of the public will be given from the Dounreay Emergency Control Centre (DECC) to Northern Constabulary.

It may be necessary to introduce temporary controls on the consumption of foodstuffs, particularly milk, produced in areas where there is contamination from the accident. The Food Standards Agency (FSA) has responsibility for food safety and will advise Scottish Executive Environment and Rural Affairs Department (SEERAD) and Local Authorities on the implementation and enforcement of such controls which are likely to cover a larger area for a longer time than sheltering and evacuation measures.

Following the closure of the nuclear reactors at UKAEA Dounreay, there is now no possibility of radioactive iodine being released to the atmosphere from the Dounreay site. Consequently, there is no requirement for the issue of potassium iodate tablets.

Countermeasures around UKAEA Dounreay include:

- Evacuation
- Sheltering
- Control of foodstuffs and water supplies

5.2 Evacuation

If a Dounreay 'Amber' alert is received, early evacuation from around the Dounreay site is the preferred option of both the Northern Constabulary and The Highland Council. The decision to evacuate will be made by the Strategic Co-ordinating Group. Evacuation procedures would be implemented unless the Dounreay Emergency Control Centre (DECC) indicated the possibility of an imminent radioactive/chemical release.

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

5.3 Notification

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 and 102.5 VHF, 1107 KHZ and BBC Radio Scotland 92.4 – 94.7 VHF, 810 MW.

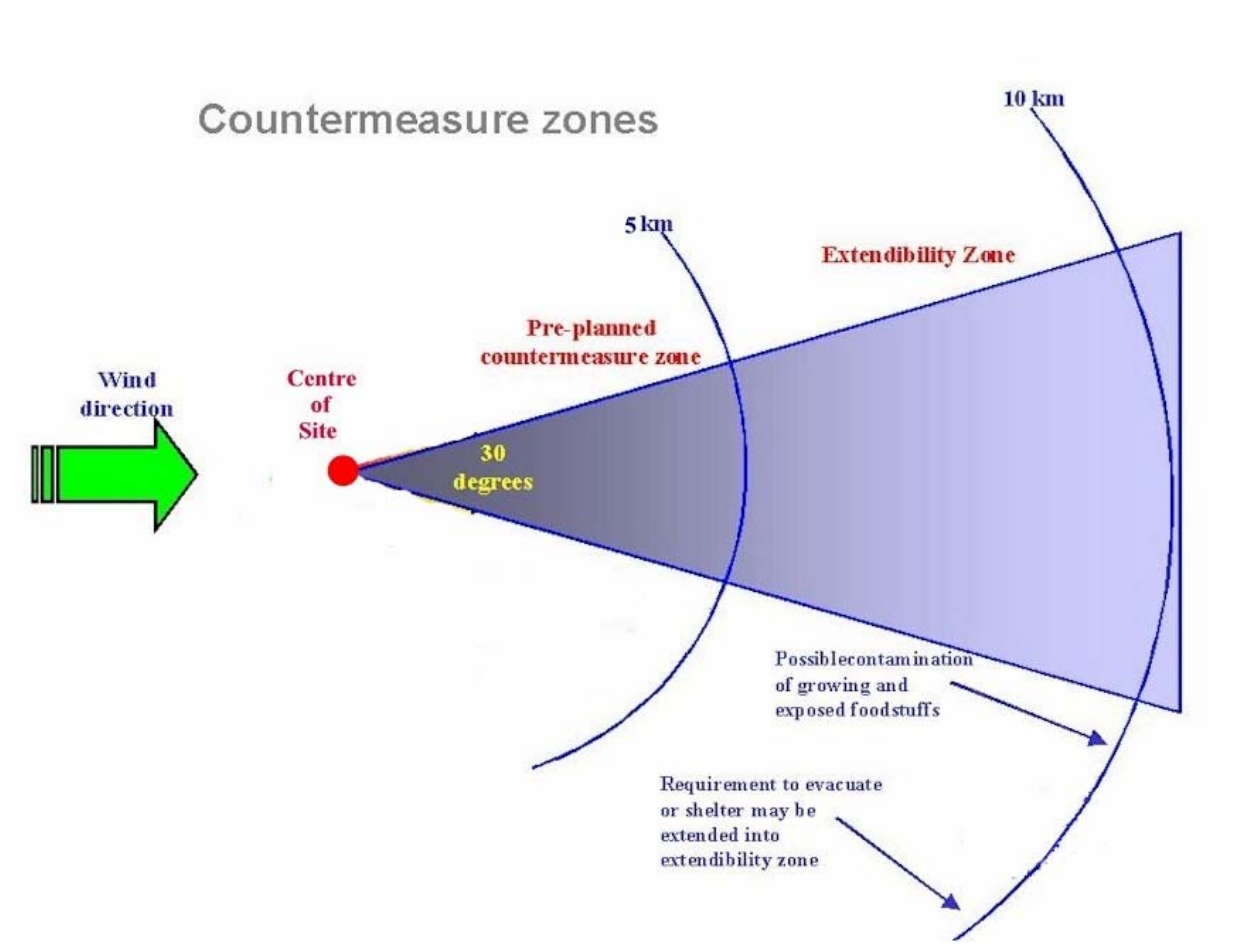
Note : Responding agencies will only deploy personnel into the areas to be evacuated if it is safe to do so.

5.4 Countermeasure Zones

There are two countermeasure zones around the Site.

Pre-planned Countermeasure Zone extending to 5km around the centre of the site. Research indicates that there are clear benefits in recommending countermeasures into the pre-planned zone. This would give the opportunity to implement countermeasures before there is a confirmed off-site hazard.

Extendibility zone out to 10 km around the Site. 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 foodstuffs, including milk products.



The Highland Council
Comhairle na Gaidhealtachd
SEEKING The Highland Community

Pre-planned Countermeasure Zone

(REPPIR)

Countermeasures around the UKAEA site include:

- Evacuation
- Sheltering
- Control of foodstuffs and water supplies

5.5 Evacuation

In any category of alert, 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 Emergency Controller 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 relatively 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 advice received.

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

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 or self evacuating 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

5.6 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.

5.7 Control of Foodstuffs and Water Supplies

Contamination of exposed and growing foodstuffs may occur downwind. Though it 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 and 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.

5.8 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 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. For 'others' the dose limit is 1 millisievert per year or 0.001 sievert unless otherwise stated in individual organisations operational guidance.

Methods of Protection

Exposure Time/Distance: 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 may 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, information will be sought from the UKAEA Incident Officer at the DECC and the monitoring team prior to the Government Technical Advisor (GTA) recommending what protective clothing should be worn and what countermeasures should be implemented.

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 their vehicles.

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

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 (24).

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) Incident control, the DECC and SCC 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) A 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 Health Physics Adviser.
This authorisation form is required to be signed by a Health Physicist, the Senior Police Officer at the Forward Control Point and the individual 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) Incident control, the DECC and SCC 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 5 and specific radiological protection requirements. The specific requirement of each authority is to be implemented.

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 requested to be kept.

(a) Times of reports or orders being issued or received.
(b) Times when other authorities are informed of occurrences.
(c) Details of persons exposed to any hazard and doses possibly received 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 Northern Constabulary Force Headquarters as soon as possible after the handover of control and co-ordination to the Local Authority.

Road Blocks / Forward Control / Rendezvous Point

(REPPIR)

(24)

SECTION 7 : COMMAND AND CONTROL

7.1 Introduction

In order to achieve a co-ordinated response to a major incident the capabilities of the emergency services should be closely linked with those of the Local Authority, Health Board 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, Strategic.

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

7.2 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 officer from an emergency service to arrive on the scene should not immediately become involved but make a rapid assessment of the scene and report to their control room.

The emergency services will concentrate on specific tasks within their areas of responsibility. Should it be necessary, consideration will 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 all the others employed in the same area to ensure an effective and combined effort.

The Police will normally act as the co-ordinator of this response at the scene. These “operational level” arrangements will be adequate for the effective resolution of most minor/medium scale incidents. However, for more serious incidents which require significantly greater resources it may be necessary to implement additional level(s) of management.

Incident Control Centre

The operational level of command will be established at the relevant UKAEA Incident Control Centre (ICC). The Dounreay site has four strategically placed ICCs. The ICC deals directly with the incident, with the support from the Dounreay Emergency Control Centre (DECC), the Emergency Radiological Incident Centre (ERIC) and the emergency response teams. It is not normal practice to send Liaison Officers from outside agencies to the ICC.

7.3 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. Some agencies, particularly Local Authorities, will prefer to operate from their administrative offices and will normally send a representative 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 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 the strategic level of management.

Dounreay Emergency Control Centre (DECC) and Incident Control at Wick Police Station

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

The DECC has dedicated on-site facilities that 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 Dounreay site. The centre has its own protected environment, together with other facilities 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.

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 Dounreay 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 also be set up within Wick Police Station. This will form part of 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 at Wick. The Police Incident Officer will be based there and will receive updates from the Police Liaison Officer at the DECC.

7.4 Strategic Level

The purpose of the strategic level of management is to formulate the overall policy and direction of a major incident.

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 normally be located at Police Headquarters, Inverness.

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 Dounreay 'Amber' 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 Dounreay Site Emergency Controller in the DECC. Advice will be available from the Dounreay Technical Team when they arrive at the SCC, Inverness. Once a Government Technical Adviser (GTA) has been appointed by the Scottish Executive and arrives at the SCC, the GTA will become the main source of advice to the Police and responding organisations.

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 is included.

Government Technical Adviser : The Government Technical Adviser (GTA) will provide independent advice to all the agencies, in particular the Police Incident Commander, on countermeasures required to safeguard the public. The GTA will be sent to the SCC within a few hours of the off-site emergency being declared.

The decision to appoint a GTA will be taken at the Scottish Executive and confirmed by the First Minister as soon as possible. The formal appointment will be telephoned to the GTA from the Scottish Executive Emergency Room (SEER). The SCC Chairman, United Kingdom Atomic Energy Authority Headquarters and the Northern Constabulary Force Operations Room will be notified by telephone from the SEER. A press release will also be made shortly afterwards by the Scottish Executive explaining the appointment.

On arrival at the SCC, the GTA will be briefed by a UKAEA representative on all aspects of the emergency.

The GTA will have the following specific responsibilities;

- Giving authoritative advice to the Police, Local Authorities and Central Government on the course of the emergency, insofar as it may affect the public and the environment around the site.
- Reviewing and confirming the assessments being made of:
  (a) The cause of the incident at Dounreay.
  (b) The radiological consequences of any radioactivity released from Dounreay.
  (c) The probability of any further release, of radioactivity from Dounreay.
  (d) The need for countermeasures to protect the local population.
- Acting as the principal nuclear industry spokesperson at media conferences and briefings at the Media Briefing Centre (MBC) on the course of the accident and measures being taken to protect the public.

The GTA will not take over any executive responsibilities from the SCC Chairman. The GTA will liaise closely with the SCC Chairman and consult the UKAEA team on all assessments being made at Dounreay.

Nuclear Installations Inspectorate (NII): The Nuclear Installations Inspectorate is the licensing authority for UKAEA Dounreay. In the event of such an emergency it is the responsibility of the NII to investigate the incident and ensure that appropriate action with regard to the safety of the plant has been taken. The NII will also act as adviser to Central Government at the Scottish Executive Emergency Room (SEER) as well as the Health and Safety Executive.

The NII has the power, if necessary, to issue directions to the United Kingdom Atomic Energy Authority on specific measures to be taken in the interest of health and safety and may advise on the on-site management of the emergency and the measures to be taken to rectify the fault and to protect the public.

NII Inspectors will investigate the circumstances leading to the emergency.

The position of the GTA will be carried out by an officer from the NII.

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. The government liaison representative will also provide a direct link with the Scottish Executive Emergency Room in Edinburgh. The Scottish Executive Environment and Rural Affairs Department (SEERAD) will be represented at the SCC.

United Kingdom Atomic Energy Authority (UKAEA): The authority will provide support to the GTA 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.

Food Standards Agency: The Food Standards Agency (FSA) is a Non-Ministerial Government Department; a UK-wide body which in Scotland is represented by FAS Scotland, as food safety is a devolved responsibility. The Agencies 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.

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 the incident.

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, the 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 (SITs) (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 consequence management phase of the incident.

Scottish Environment Protection Agency: The Scottish Environment Protection Agency (SEPA) 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 (RIMNET).

Rolls Royce: Will deploy two members of staff to provide technical and operational support to the SCC.

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.

In the emergency phase of an incident at UKAEA Dounreay, 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 GTA, will decide which agencies will be represented on the Strategic Co-ordinating Group. Representatives from each agency should be kept to a minimum.

7.5 Information flow 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.

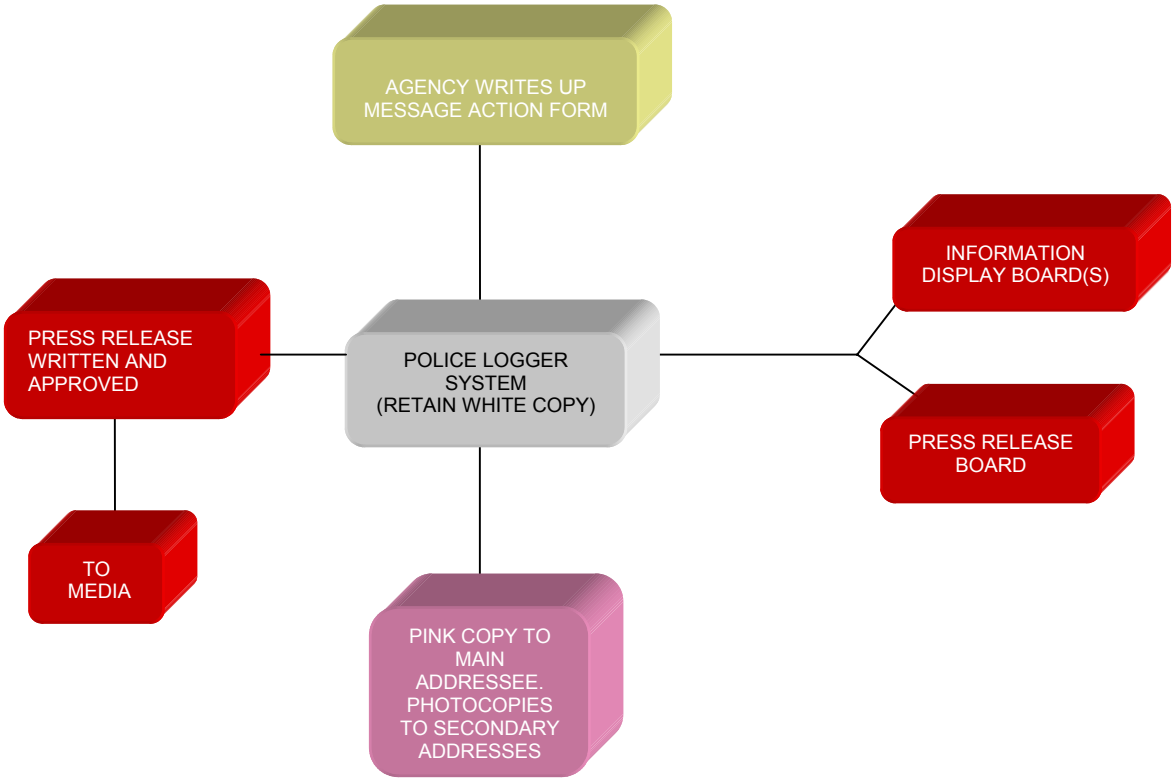
Message/Action System: To ensure that a record of all strategic information passed between agencies during a major incident/exercise is recorded, a message/action system is administered by the Strategic Administration Team (SAT).

Information Display: 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 carbonised 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 white 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.

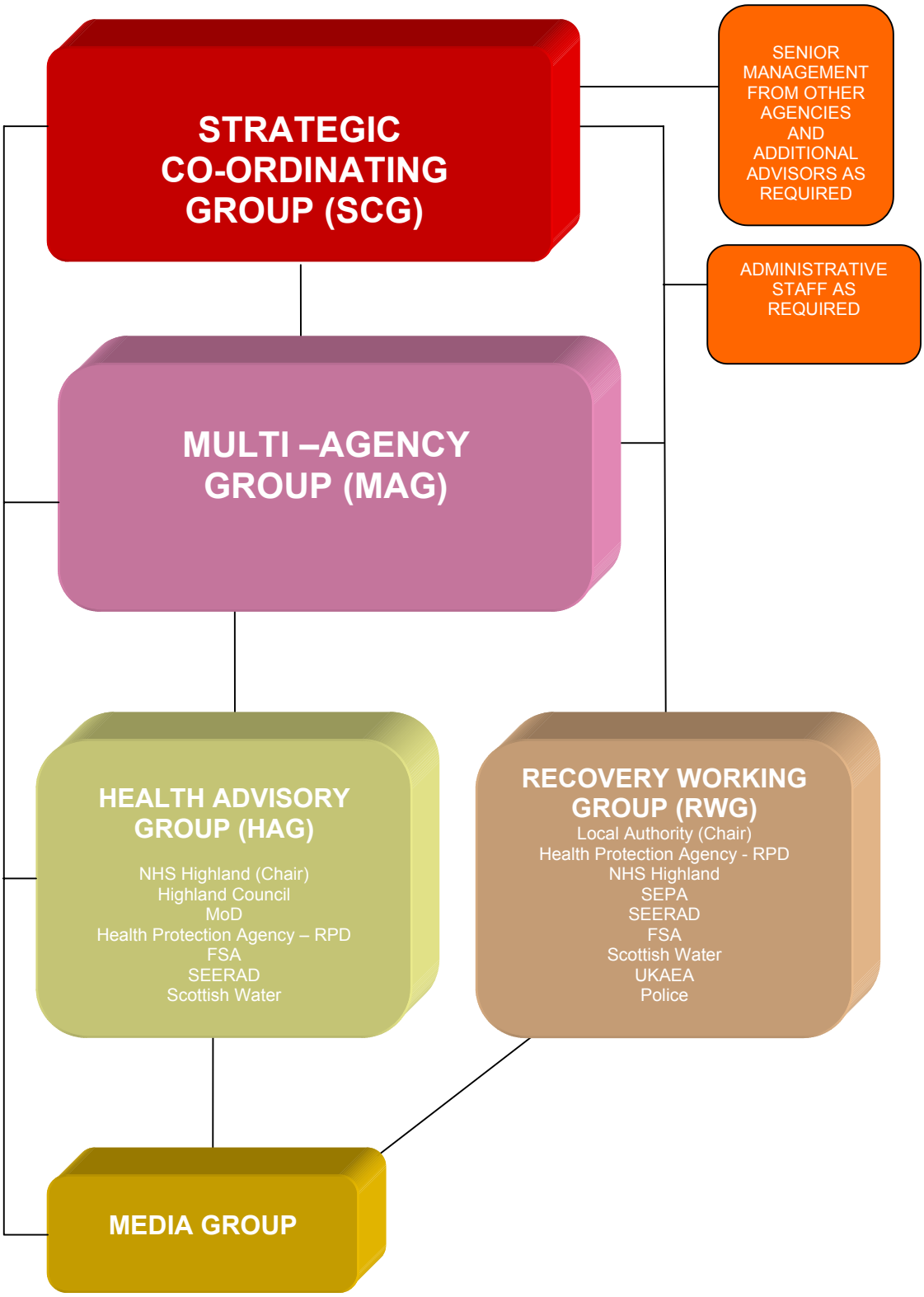
Press Releases: All press releases are approved by the Strategic Co-ordinating Group prior to being released to the media. The press releases will go through the SAT as described above and will be displayed in the atrium on the 'Press Releases' Board.

7.6 MESSAGE/ACTION FORM AND PRESS RELEASE FLOW CHART



See detail at 7.5 on Page 31

7.7 STRATEGIC CONTROL CENTRE (SCC) MANAGEMENT STRUCTURE



SECTION 8 : MEDIA MANAGEMENT

8.1 Introduction

The task of dealing with media pressure at the scene of a major incident with off-site implications, is primarily the responsibility of the Police. Media personnel will arrive at the scene of an incident at UKAEA Dounreay 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 Initial Holding Statement

The press will be provided with an initial holding statement, issued automatically by the UKAEA. The statement should be along the following lines:

'An incident has occurred about (time and date) at UKAEA Dounreay (give brief details, including off-site consequences). Emergency services are currently at the scene and an update will be given when further information becomes available.'

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.

8.3 Forward Media Liaison Point

The Forward Media Liaison Point (FMLP) has been identified as 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 UKAEA Site at Dounreay 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 conference 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 UKAEA Dounreay 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 the 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, smooth flows 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 after the local authority takes over the co-ordinating role from the police and for as long as necessary.

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 will include 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 Government Technical Adviser 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 Government Technical Adviser, as appropriate, in the light of developments and the interests of the media, and taking into consideration the views of 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 a spokesperson being available, as appropriate) in order to provide for the needs of the broadcast media who will be the main recipients.

SECTION 9 : INITIAL ACTIONS

9.1 Initial Actions by UKAEA Dounreay

On the sounding of the Dounreay site alert:

- Dounreay Emergency Control Centre will be manned
- Emergency Radiological Incident Centre will be manned
- Dounreay Fire and Ambulance Service will mobilise and await further instruction
- The UKAEA Constabulary will be on standby
- The Occupational Health Department will be on standby

Given that an 'Amber' incident invokes the off-site arrangements, UKAEA Dounreay will:

- Mobilise a UKAEA team to attend at the Strategic Co-ordinating Centre, Inverness.

9.2 Initial Actions by Civil Nuclear Constabulary (CNC)

- Establish the alert is genuine by calling the appropriate Shift Manager.
- Initiate the Site Emergency call out procedure which includes Northern Constabulary.
- Carry out a role call of CNC officers and assist with the site personnel accountancy procedure.
- Secure the site, closing the main gate and cordoning off the area of the incident.
- Vehicle patrols would be tasked to ensure that site emergency procedures are being complied with by site employees.
- Call out off-duty CNC officers.
- Be responsible for indicating best route to Dounreay for all emergency teams responding.
- Act as reception for all agencies, Northern Constabulary, Highland and Islands Fire Brigade, NHS Highland and other emergency staff.
- Send an officer to the Dounreay Emergency Control Centre and also to the Incident Control Centre.
- Respond, as necessary, to assist the site Fire Brigade.
- Respond, as required, to assist Northern Constabulary.
- Consider sending a senior officer to the Strategic Co-ordinating Centre, Inverness.

9.3 Initial Actions by Vulcan NRTE

- Vulcan Emergency Control Centre (VECC) would be manned and will close up.
- Site Personnel would shelter and muster.
- MoD would deploy a liaison officer to DECC.

9.4 Initial Actions by Northern Constabulary

INITIAL ACTIONS BY FORCE OPERATIONS ROOM

If an 'Amber' or 'Red' alert is received by Northern Constabulary Force Operations Room in Inverness, indicating that a nuclear incident has occurred at UKAEA Dounreay, the Force Operations Room Duty Officer will:

- Confirm that the alert is genuine by telephoning the Dounreay Emergency Control Centre (DECC) on 01847 804622.

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 note of times when all personnel informed.
- Wick Control Room, Caithness & Sutherland Area Command (advise of IMPACT log number)
- Highlands 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 Operational 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 public warnings/other emergency broadcasts
- Obtain weather details from Aberdeen Weather Centre.

INITIAL ACTIONS BY WICK CONTROL ROOM

If an 'Amber' or 'Red' alert is received by Wick Control Room indicating that a nuclear accident has occurred at UKAEA Dounreay, the Area Command Control Room will:

- Confirm safe route to Dounreay Emergency Control Centre (DECC) and estimate timescale of route remaining safe, by telephoning 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 any additional Police personnel as directed by the Area Commander or senior officer on duty
- Call out any 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 IMPACT logging system, including note of times when all personnel contacted
- Maintain liaison with Force Operations Room
- Set up Forward Media Liaison Point in Thurso College.

INITIAL ACTIONS BY FIRST OFFICER AT SCENE/INCIDENT OFFICER

At the start of the incident, the Incident Officer will be the first officer to arrive at Dounreay Emergency Control Centre (DECC). This officer will assess all the information available and pass it to Wick Police Station for the information of the Area Commander or 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 UKAEA site
Emergency Services	Present/required
Type of Incident	Fuel handling, storage etc

Once the Area Commander or 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 and will be policed by Civil Nuclear Constabulary.

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 blocks have been identified at the following locations. Two or three cordon points would suffice for most situations, see Map on Page (24).

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

Road Block 2 : East 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 the following is carried out:

- Liaise with Logistics Cell Co-ordinator and ensure that the Strategic Co-ordinating Centre has been set up 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 also assume the role of Strategic Co-ordinating Group 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 a Dounreay 'Amber' alert is received, early evacuation around Dounreay will 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 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 Government Technical Adviser. If the Government Technical Adviser has not arrived at the Strategic Co-ordinating Centre at Inverness, then advice will be sought from the DECC.

9.5 Initial Actions by Highland and Islands Fire Brigade

Initial Actions by Fire Brigade Control

On receiving a call for assistance from UKAEA Dounreay, Fire Brigade Control will:

Dounreay 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)

Off-Site Emergency

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

Strategic Level

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

Initial Actions

Initial Actions by OIC of First Attendance

- Proceed to UKAEA Dounreay main gate
- On arrival at UKAEA Dounreay main gate, await for Police escort to the Fire Station (RVP 1)
- Hand in the nominal roll board to the UKAEA Dounreay 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 Police escort to Dounreay Emergency Control Centre (DECC)
- Once briefed by the Incident Liaison Officer will act as the Fire Brigade Liaison Officer.

9.6 Initial Actions by Scottish Ambulance Service

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

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 the 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.

9.7 Initial Actions by Maritime and Coastguard Agency

On receipt of a warning of an incident at UKAEA Dounreay, MRCC Aberdeen will take the following action:

- Create an incident on ADAS logging system, and keep full records.
- Notify neighbouring Coastguard Rescue Centres, as appropriate.
- Contact Northern Constabulary Force Operations Room, Inverness.
- Make warning broadcasts to shipping in the area, as appropriate.
- Inform local RNLI Lifeboat Hon Secretaries.
- Inform local Harbour Masters.
- Inform Air Rescue Co-ordination Centre, Kinloss.
- Send a senior officer to the Strategic Co-ordinating Centre, Police Headquarters, Inverness, if requested.

9.8 Initial Actions by NHS Highland

On receipt of an 'Amber' or 'Red' alert by UKAEA Dounreay the initial response from NHS Highland will include:

- Alerting hospitals designated to receive radiation contaminated casualties.

- Provide medical service 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 implication.

- 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
  public reassurance monitoring
  decontamination in appropriate circumstances.

9.9 Initial Actions by The Highland Council

Following notification of a Dounreay 'amber' or Dounreay 'red' alert from Northern Constabulary to the Highland Council 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) Arrange for liaison officer to attend at Wick Police Station and Brownhill Lodge, Thurso.

  d) Initiate proceedings to activate Radiation Screening Unit(s) and associated Reception Centres, if required.

  e) Place on standby a labour force to carry out improvisation work in relation to Radiation Screening Units and associated Reception Centres.

  f) Alert local WRVS teams to prepare to assist with registration and feeding at Reception Centre(s), if required.

- Despatch two Emergency Planning Officers, in emergency communications vehicle, to Wick.
- Contact Chief Executive, The Highland Council. Arrange attendance at the Strategic Co-ordinating Centre (SCC) with necessary admin support.
- Contact Orkney Islands EPO.
- Set up and fully staff the Emergency Centre, Raigmore, Inverness.
- 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 Scotland and invite the Agency to send representatives to the Strategic Co-ordinating Centre.
- Arrange for transport to be on standby for use if evacuation procedures are implemented.

9.10 Initial Actions by the Scottish Environment Protection Agency

Following notification of a Dounreay 'amber' or Dounreay 'red' 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 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 Scottish Water

On receipt of the message indicating there is a nuclear incident at UKAEA, Scottish Water will arrange for the following staff to attend the Strategic Co-ordinating Centre at Police Headquarters in 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 the NHS Board(s) assess the risk to public health as a result of the contamination
- 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.

9.12 Initial Actions by The Scottish Executive

Following notification of a Dounreay 'amber' or Dounreay 'red' alert from Northern Constabulary to The Scottish Executive 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.

9.13 Initial Actions by Orkney Islands Council

Following notification of a Dounreay 'amber' or 'red' alert from Northern Constabulary to the Orkney Islands Council, 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 NHS Orkney DPH/CPHM,
- Set up and staff the Orkney Islands Council emergency centre as required,
- If necessary, call a meeting of all relevant organisations.

9.14 Initial Actions by NHS Orkney

Following notification of a Dounreay 'amber' or 'red' alert from the Northern Constabulary, 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.

9.15 Initial Actions by Food Standards Agency

Following notification that a nuclear incident has occurred at UKAEA Dounreay, the Food Standards Agency (Scotland) 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 the relevant organisations as necessary.

9.16 Initial Actions by Nuclear Installations Inspectorate (NII)

- In any nuclear site emergency which has or could have off-site consequences, NII will deploy staff to the affected site, the Strategic Co-ordinating Centre (SCC) and the Nuclear Accident Information and Advisory Group (NAIAG) in London.

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

On receiving an alert call from UKAEA Dounreay 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 adviser to attend the SEER in Edinburgh.
- Assist NHS Highland in monitoring at a 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 UKAEA Dounreay

11.1.1 In responding to an incident at the premises of UKAEA, Dounreay, the responsibilities of the staff may be summarised as follows:

(a) Safe rescue of any casualty, casualty handling and treatment.

(b) To safeguard the safety of personnel on the Dounreay site.

(c) To alert the emergency services.

(d) To liaise with the emergency services and provide technical advice and support.

(e) To provide accurate information on the radioactive substances/chemicals currently stored in the affected area, or released to the environment.

(f) To provide accurate information on the number of staff currently working on the premises and who have not been accounted for.

(g) To deal with and control the incident.

(h) Draw up and implement a recovery plan.

11.2 Roles and Responsibilities of Civil Nuclear Constabulary

11.2.1 The role of the CNC Police is similar to any other Police Force, in that responding to emergencies, it is to protect life and property.

11.2.2 In responding to a site emergency at Dounreay the responsibilities would cover such area as:

(a) Saving life, in conjunction with other emergency services.

(b) Act as reception and co-ordinate all agencies attending Dounreay during the emergency phase.

(c) To call out Dounreay emergency staff as necessary.

(d) To preserve and protect the scene of the incident.

(e) Assist and investigate the incident with all regulatory bodies.

(f) Assist Northern Constabulary in their roles of casualty information, identification of fatalities etc.

(g) Assist UKAEA Dounreay and other external bodies in restoring normality at the earliest convenience.

11.3 Roles and Responsibilities of Northern Constabulary

11.3.1 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.

11.3.2 In responding to an incident at UKAEA Dounreay 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 other organisations to either deploy or standby.

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

11.3.3 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 principle legislation pertaining to 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

11.4.1 Responding to emergencies is a normal feature of the work of the Fire Brigade. The normal roles and responsibilities of the Fire Brigade are derived from its long experience in firefighting and rescue operations and encompass the saving of life and the protection of property.

11.4.2 In responding to an incident at UKAEA the Highland and Islands Fire Brigade's responsibilities may be summarised as follows:

(a) Liaison with co-located UKAEA personnel to develop a strategy to prevent the further escalation of the incident by tackling fires, dealing with released chemicals and radioactive material and other hazardous situations;

(b) The rescue of trapped casualties;

(c) Liaison with the Medical Incident Officer and other medical services with regard to the provision of assistance at ambulance loading points and the priority evacuation of injured persons;

(d) Participation in investigations as appropriate and preparing reports and evidence for inquiries;

(e) Stand-by if necessary during the non-emergency recovery phase to ensure continued safety at and around the site.

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 Service 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 summarised 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

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

11.6.2 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 the NHS Highland

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

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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 a 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 advisor
    - 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 alert category.

- Dounreay 'Amber' or 'Red' alert – Proceed to Police Headquarters, Inverness to represent NHS Highland on a Strategic Co-ordinating Group.

- Establish and Chair a Health Advisory Group.

11.7.4 **Contaminated Casualties**

The only NHS Highland facility capable of receiving 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).

11.8 Roles and Responsibilities of The Highland Council

11.8.1 It is likely that a number of Council Services would become involved in a major incident at UKAEA Dounreay.

11.8.2 In responding to an incident the local authority's 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) Co-ordinate any necessary works required to ensure the effective and safe operation of Radiation Screening Units.

(c) Co-ordinate any procedures, including documentation, necessary to return the Radiation Screening Unit to normal function.

(d) To provide assistance and resources to the emergency services as requested by them.

(e) To liaise with the emergency services engaged at the scene.

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

11.9 Roles and Responsibilities of the Scottish Environment Protection Agency

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

11.9.2 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.

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

11.9.4 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.

11.9.5 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.

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

11.10 Roles and Responsibilities of Scottish Water

In responding to an incident at UKAEA, 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 the Public Health Guidelines.
- Where there is a failure in the public water supply, Scottish Water will arrange for alternative supplies of drinking water.

11.11 Roles and Responsibilities of The Scottish Executive

11.11.1 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 UKAEA Dounreay 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

11.12.1 In the event of a major incident at UKAEA Dounreay 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

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

11.13.2 Responding to an incident at UKAEA Dounreay, 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 organisations, the enforcement of any emergency orders.
- To ensure, in conjunction with the SEPA 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 the Nuclear Installations Inspectorate (NII)

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 Team will:

- consider all aspects of the emergency which will 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 UKAEA Dounreay, 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 and 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, or his nominated deputee.

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 liaise 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 but 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

UKAEA

NII

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)

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).

(3) Identify what is the current state of play (eg shelter, evacuation, people at centres, levels of contamination, utilities affected)

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 on health matters from a Health Advisory Group.

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 nominate depute - 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 HAG, and the reasons for those decisions
(e) liaise with 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.

Map showing area from Strathy to the Dounreay Site

(REPPIR)

(82)

Map showing area from Dounreay Site to Thurso

(REPPIR)

(83)

PROCEDURE FOR CLAIMS FOR INJURY, DAMAGE OR LOSS

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

(a) Claims will be dealt with 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) 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 power under the Food 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 Regional Representative of the relevant Government Department. In doing so, they will be regarded as the agents of HM Government in any matter of liability arising from the discharge of the duties involved.

REGISTRATION OF CIVILIANS IN AN AREA AFFECTED BY RADIOACTIVITY

If radioactivity affects areas outside UKAEA's 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 necessary arrangements for the forms to be made available through local post offices will be made.

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

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

"There has been an accident on the UKAEA Dounreay Site 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.

A register has therefore been set up 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.

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.

The function of the post office in this matter is purely and simply that of a distributing agency.

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 UKAEA DOUNREAY 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

STAND DOWN NOTICE TO FARMERS

Tel No (as appropriate)

Food Standards Agency
(Address as appropriate)

Date ……

Dear Sir

ACCIDENT ON UKAEA DOUNREAY 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

NOTICE TO FISHERMEN AND OWNERS OF FISHING VESSELS

Tel No (as appropriate)

Food Standards Agency
(Address as appropriate)

Date: ……..

Dear Sir/Madam

ACCIDENT ON UKAEA DOUNREAY 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 UKAEA Dounreay 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

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 UKAEA DOUNREAY 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

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**

ABBREVIATIONS

CNC	CIVIL NUCLEAR CONSTABULARY
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
FMLP	FORWARD MEDIA LIAISON POINT
FSA	FOOD STANDARDS AGENCY
GTA	GOVERNMENT TECHNICAL ADVISOR
HPA	HEALTH PROTECTION AGENCY
ICP	INCIDENT CONTROL POINT
IO	INCIDENT OFFICER
MBC	MEDIA BRIEFING CENTRE
MIO	MEDICAL INCIDENT OFFICER
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.
Becquerel (Bq)	Unit of quantity of radioactive material. 1 Bq = 1 disintegration per second.
Chain Reaction	A process which, once started, provides the conditions for its own continuance. In a reactor, neutrons released in the fission process cause further fission and so on.
Contamination	Deposited radioactive particles.
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.
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 immediate vicinity to which entry is restricted when the plant is operating.
Fission	Rupture of a nucleus into two lighter fragments (known as fission products) plus free neutrons – either spontaneously or as a result of absorbing a neutron plus energy.
Gamma Radiation	High energy electro-magnetic radiation of considerable penetrating power emitted by most radioactive substances.
Gray (Gy)	Unit of radiation absorbed dose.
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.

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.
Plume	Airborne contamination in downwind sector.
Pre-planned Countermeasure Zone	An area out to 5km from the site.
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.
Shielding	Material such as concrete, lead, special constructed polythene or water which attenuates radiation and reduces its intensity.
Sievert (Sv)	Unit of both effective dose and equivalent dose.
SLO	Site Liaison Officer.
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.