

State of Queensland

# Radiological Disaster Plan

A functional plan of the State of Queensland  
Multi-Agency Response Plan to Chemical,  
Biological, Radiological incidents.



**Queensland Government**  
Department of **Emergency Services**  
State Disaster Management Group  
Queensland **Health**

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## Foreword

An important aspect of managing a radiological emergency is the ability to promptly and adequately determine the hazard and take actions to protect the public and emergency workers. The State Radiological Disaster Plan has been developed to facilitate timely, effective and systematic control of radiological incidents, both deliberate or accidental, by multi-agency emergency response teams.

The Plan has been prepared by Queensland Health in consultation with the Queensland Government's key emergency response providers. The Plan will also assist in the management of a "dangerous event" as defined under the *Radiation Safety Act, 1999*.

The main objective of this Plan is to provide an integrated and harmonious multi-agency emergency response to radiological incidents. Such a response will minimise the harmful effects of radiation on human health and the environment.

## Preface

Queensland Health is the lead radiation safety agency in Queensland. Through Radiation Health, Environmental Health Unit (Public Health Services), Queensland Health is responsible for the administration of the *Radiation Safety Act, 1999* and the *Radiation Safety Regulation, 1999*. Radiation Health has also been delegated the power of an Administering Authority under the *Environmental Protection Act, 1994* for matters relating to land affected by radioactive material.

An incident involving the release or potential release of radioactive materials has the potential to cause harm to persons, property and the environment. Furthermore, radiological emergencies resulting from deliberate acts such as terrorist activities involving highly hazardous and toxic radioactive materials such as uranium or plutonium have the potential to cause considerable damage to human health and to the environment. Most studies indicate that terrorist threats using nuclear weapons in the form of atomic bombs are unlikely to be carried out because of the extreme costs, logistical difficulty and the highly sophisticated technology necessary to develop and explode such devices. The possibility of a conventional explosive wrapped or impregnated with radioactive material is however, more likely and may also cause considerable radiation damage to persons and the environment.

One of the most important aspects of managing a radiological emergency is the ability to promptly and adequately determine and take actions to protect the public and emergency workers. Radiological incident assessment must take account of all critical information available at any time and must be an iterative and dynamic process aimed at reviewing the response as more detailed and complete information becomes available.

The State Radiological Disaster Plan has been developed by Queensland Health to facilitate effective and systematic control of radiological incidents both deliberate and accidental. The Plan follows an agreed set of protocols and procedures that are designed to integrate and harmonise multi-agency emergency response to such incidents. Arrangements for response planning, incident management and remediation for radiological incidents are covered in the Plan. The effective control and coordination of the response during such incidents is central to the Plan's objectives.

## Part 1 - Introduction

### Authority to plan

The State Radiological Disaster Plan has been prepared under the direction of the Chief Executive of Queensland Health and has been authorised under Queensland's *State Disaster Management Act, 2003*. The Plan will also assist the Queensland Health Chief Executive satisfactorily in dealing with "dangerous events" under the *Radiation Safety Act, 1999* in situations where a multi-agency response is required.

The Plan has been developed around the strategic planning framework provided for under the State of Queensland, Multi-Agency Response Plan to Chemical, Biological and Radiological (CBR) Incidents. The Plan is also intended to work co-operatively with the State Chemical/HazMat Plan in the event of an incident involving both radioactive substances and other hazardous materials.

### Scope of the plan

The Plan is intended to assist in the co-ordination of a multi-agency emergency response to maximise the outcomes of protective actions for the public and emergency workers for major radiological incidents.

The Plan provides for response planning and incident management and remediation procedures for radiological incidents both deliberate and accidental. Although this Plan is also applicable to radiological incidents that could result from deliberate acts such as terrorist activities, the security aspects of the response to such events are not within the scope of this Plan.

### Key objectives of the plan

The objectives of the Plan are:

- To provide an integrated and harmonious multi-agency emergency response to radiological incidents.
- To reduce the adverse impacts of a radiological incident on human health and the environment.

### Activation of the plan

The State Radiological Disaster Plan may be activated in the event of an incident:

- involving radioactive substances at premises which are not under the control of a person who holds a possession or a use licence under the *Radiation Safety Act, 1999*; or
- described as a "dangerous event" under the *Radiation Safety Act, 1999*.

Depending upon the nature and scale of the incident and whether other hazardous materials are involved the State Chemical/HazMat Plan and the National Counter Terrorism Plan may also be invoked. Queensland Health (Radiation Health) is the lead agency for incidents involving radiation sources and radioactive materials where persons may be subject to radiation doses in excess of the dose limits prescribed in the *Radiation Safety Regulation, 1999*.

## Part 2 - Incident scenarios

### Background

From an emergency management perspective, incident scenarios may be classified as follows:

- incidents of accidental origin involving radioactive material;
- terrorist or criminally inspired incidents;
- incidents involving radioactive materials outside the State or Country with trans-boundary effects; and
- nuclear powered satellite re-entry.

A brief description of each is provided below.

### Incidents of accidental origin involving radioactive material

This is a broad category, which includes found radioactive material or contaminated areas or items, lost or missing sources, unshielded sources, accidents in a laboratory, industrial or research facility, and transport accidents.

Radioactive materials in the form of sealed and unsealed sources are used for a wide variety of purposes in industry, medicine, research and teaching as well as in a number of consumer products on sale to the general public. They are used for industrial radiography, sterilisation units, radiotherapy and nuclear medicine, bore hole logging, density and moisture gauges, anti-static devices and lightning rods, and consumer products such as smoke detectors or self-illuminated warning signs. These sources vary enormously in the magnitude of their activity and the hazard they pose to health and the environment.

The failure of established radiation safety controls may lead to an emergency situation (e.g. an industrial gamma radiography source left outside its shielded enclosure, or a radioactive package found in a public place). The greatest potential for serious injury arising from these sources comes principally from an unshielded high activity source. Consequences can be serious and in some cases may result in death, especially if the source is handled by persons who are not familiar with radiation hazards, or who do not know that the object is radioactive.

In addition to the external radiation hazard, damaged sources of any nature and size can result in contamination of people and/or the environment. As a result of a fire or dispersion by wind or ventilation, contaminated material can also become airborne. The consequences could include serious skin burns from beta radiation and internal contamination, potentially leading to serious health consequences. The situation can be made worse if the accident is not discovered in time and dealt with properly. Furthermore, dispersion by wind or rain can increase the area affected by the hazard whilst hindering attempts at its detection and discovery.

Contamination by alpha emitters such as plutonium and americium is a special case in this category. Incidents involving the transport of radioactive material or illicit trafficking are of particular concern because of the tendency for such incidents to involve dispersal of the hazard to areas that are frequented by the general community. Plutonium presents a very high inhalation hazard, and is difficult to detect using commonly available instruments. Responding to accidents involving plutonium requires enhanced precautions.

### **Terrorist or criminally inspired incidents**

The enactment of this Plan during such incidents is focussed on mitigation of the harmful effects of radiation and the recovery or suitable disposal of the radioactive materials.

The likelihood of terrorist use of a nuclear device is remote. This is because of the stringent controls on access to nuclear devices/materials, the difficulties in transporting the devices/materials and the sophisticated technology required to develop and detonate such devices. However, a conventional explosive wrapped or impregnated with radioactive material is a possibility. Such a device may cause considerable radiation related damage to persons and the environment.

The response to an incident involving a nuclear weapon is complicated by other hazards such as possible spread of plutonium, enriched uranium or other chemically toxic and radiologically hazardous (radiotoxic) nuclear materials as well as high explosives, beryllium, and, potentially, other toxic materials.

### **Incidents outside the state with trans-boundary effects**

An incident that results in very serious consequences off-site at a nuclear power plant, large fuel storage facility or at fuel reprocessing facility is unlikely, but remains possible. Such an incident at facilities located 100 to 1000 km outside Queensland is unlikely to have

consequences significant enough to warrant urgent protective actions such as evacuation or sheltering. The principal risk from such incidents lies in their potential to have an adverse impact on the food chain.

### **Nuclear powered satellite re-entry**

Nuclear power sources are used in space vehicles such as satellites and deep space probes. Plutonium, a component of the radionuclide thermoelectric generators and heating units is of special interest. Also, some satellites are known to contain radioactive materials in the form of small nuclear reactors. Launch accidents do not usually present a significant hazard. Accidental re-entry as a result of loss of control of a space vehicle may result in it impacting on the earth's surface and the spread of contamination. There will normally be sufficient advance notice to prepare for a response although the exact location of impact cannot be predicted.

Planning for a response to such an incident involves the development of procedures and responses organised at the national level. Information about the preparedness for specific satellite re-entry incidents is conveyed to State agencies by the Counter Disaster and Rescue Services with the assistance of Emergency Management Australia. The State Radiological Disaster Plan will be activated where a significant threat has been determined following a re-entry impact.

## Part 3 - Incident response and management

### Background

Queensland Health is responsible for administration of the *Radiation Safety Act, 1999* through Radiation Health, Environmental Health Unit, Public Health Services Branch.

The main objective of the Act is to protect people and the environment from the harmful effects of radiation. This objective is realised through the establishment of a regulatory regime in which persons who possess or use radiation sources or transport radioactive substances are required to be appropriately licensed under the Act.

As Queensland's peak radiation safety agency, Queensland Health (through Radiation Health) is responsible for providing expert radiation safety advice to the whole of the Queensland Government. Radiation Health, Queensland Health is the State's Competent Authority for the transport of radioactive substances. Radiation Health, Queensland Health is also the administering authority under the *Environmental Protection Act, 1994* for matters relating to land affected by radioactive material.

The officers of Radiation Health are qualified radiation physicists and are appointed as inspectors under the *Radiation Safety Act, 1999*. The inspectorial powers under the Act are substantial and give sufficient powers to the inspectors to ensure that, during both normal operations and abnormal conditions, adequate controls are able to be put in place to protect the health and safety of all persons and the environment. Officers of Radiation Health are also approved as Authorised Officers under the *Environmental Protection Act, 1994* for matters relating to land affected by radioactive material.

### Operational Coordination

Queensland Health (Radiation Health) is the lead agency for incidents involving radiation sources and radioactive materials where persons may be subject to radiation doses in excess of dose limits prescribed in the *Radiation Safety Regulation, 1999*. This determination will be able to be made by the State Radiation Officer following receipt of initial advice about the incident.

For all such incidents, including those involving the deliberate release of radioactive material, the Queensland Police Service (QPS) is the controlling and coordinating agency. The Queensland Fire and Rescue Services (QFRS) may be called upon to assist where necessary.

The Queensland Ambulance Service (QAS) and other emergency services and agencies will provide support and advice as requested by Queensland Health.

During incidents where it is deemed necessary to invoke this Plan, Radiation Health will be responsible for the assessment of radiological hazards and will provide radiation protection advice to emergency responders and persons affected by the incident. Radiation Health will initiate and manage radiation-related remedial actions. Radiation Health will work with the assistance of other government agencies to manage the recovery of radioactive materials involved in the incident, radiation monitoring and decontamination operations. Radiation Health will also take into its custody all radioactive things and things that are permanently contaminated with radioactivity and will manage them until they are safe to be released or otherwise dealt with.

## Roles and Responsibilities

### Queensland Health

As lead agency Queensland Health will be responsible for providing advice on issues concerning radiation health and safety and the medical management of affected persons and the coordination of the medical and public health response to the incident.

#### *Radiation Health and Safety*

The Director, Radiation Health will take on the responsibilities of the State Radiation Officer (SRO). The SRO will oversee all incidents which only require a response by the Radiation Health Incident Response Team, as outlined in Annex A.

The SRO will provide advice, initiate and manage protective actions by the emergency workers in consultation with the QFRS HazMat Controller and the Police Forward Commander. In particular the SRO is responsible for:

- assessment of the radiological hazards;
- recommending, where appropriate, sheltering or evacuation of persons directly affected by the incident;
- recommending the issue of stable iodine tablets to persons;
- providing radiation safety advice in relation to the establishment of HazMat Control Zones;
- providing radiation protection advice to emergency workers and other persons;
- overall management of radiation monitoring and decontamination operations;
- overall management of radiation dose assessment of persons who may have been exposed to radiation; and
- overall management of the recovery or disposal of the radioactive substances.

Queensland Health Pathology Services may provide specialist laboratory services in aiding the analysis of the radiological material.

#### *Medical Management and Coordination*

Public Health Services through the Public Health Unit Network will coordinate health surveillance and monitoring; coordinate epidemiological investigation involving multiple local health agencies; communicate medical matters and provide advice to hospital and general medical practitioners throughout the state; coordinate requests for medical personnel, materials and support to local hospitals.

Queensland Health will also augment internal patient care capabilities; increase staffing; inventory and ensure adequate supplies of medication and materials; and coordinate patient care with Public Health Unit; and submit requests for assistance and resources through Coordinator Emergency Health Services.

### Queensland Fire and Rescue Service (QFRS)

The QFRS Fire Controller in liaison with the SRO will be responsible for the identification and establishment of HazMat safe operating zones and the safety of personnel including those of other agencies. The Fire Controller is responsible for operations within the HazMat control zones. The Fire Controller will:

- establish and maintain hot/warm/cold zones with controlled entry/egress points;
- maintain appropriate HazMat Control Procedures;
- identify and tag contaminated articles including clothing;
- decontaminate emergency personnel and the public, and provide off-site decontamination as required; and
- control entry operations within the hot zone such as rescue/identification.

The QFRS' RACE (Response Advice to Chemical Emergencies) team may provide the initial response to a radiological incident and where this occurs will notify Radiation Health, Queensland Health immediately.

The RACE team may also undertake a preliminary radiation survey as part of its initial incident response procedures.

#### Queensland Police Service (QPS)

The QPS is responsible for the coordination and security of the incident site, including:

- establishing and maintaining the Police Forward Command Post including the media centre;
- making declarations of an emergency situation under the provisions of the *Public Safety Preservation Act*, as necessary;
- security support for all involved agencies;
- facilitating resource supply through the State Crisis Centre (when applicable);
- the rendering safe of explosive devices;
- establishing registration of evacuees;
- establishing victim registration/deceased/alive;
- controlling entry/egress points from the cold zone and outer cordon;
- staging and marshalling areas off-site for supporting agencies and resources;
- coordination of public protection strategies including evacuation and adjacent refuge in liaison with the SRO;
- liaison with QFRS/QAS/QH/ Australian Defence Force (ADF) at on and off-site locations;
- evidence security – where criminal or negligence origins are evident in liaison with the SRO; and
- dealing with the media in liaison with the SRO and the QFRS HazMat/Fire Controller.

#### Queensland Ambulance Service (QAS)

The QAS will be responsible for:

- establishing and maintaining the casualty collection, triage, treatment and transport areas;
- establishing the casualty collection post

adjacent to the decontamination corridor exit (on advice from the QFRS Commander in liaison with the SRO); and

- establishing casualty triage and treatment areas at a distance which will provide optimum protection to casualties and personnel (on advice from the QFRS Commander in liaison with the SRO).

### Incident response

#### Notification

Radiation emissions from radioactive materials or radiation apparatus cannot be seen, smelt, heard or felt. They can, however, be detected by using suitable radiation monitoring equipment. The presence of radioactive material may remain undetected as a result of poor technique and skills in the use of the monitoring equipment or inappropriate monitoring equipment.

The first responders may be alerted to the presence of radioactive material or sources by packaging material displaying radiation hazard warning signs or other written material that may indicate that the package or thing may be radioactive. It is also a possibility that radioactive materials may be involved although there are no obvious indicators of their presence. This increases the difficulty in adequately responding to radiological incidents.

Typically, emergency response agencies such as QAS, QPS or QFRS will be the first responders at the site of an incident. The investments in planning and implementation of appropriate infrastructure in southeast Queensland will enable response actions to be undertaken in a structured and timely manner ensuring sound management of the incident. However, in regional and rural Queensland the necessary infrastructure to adequately respond to radiological incidents may not be available. Consequently this Plan will also serve as the basis of measures for ensuring appropriate response in such areas.

### **Incident notification mechanisms in South East Queensland**

#### *Notification through RACE*

The QFRS' RACE team has the capability of undertaking preliminary radiation monitoring. RACE is also able to call on the expertise of health physicists from Queensland Health Scientific Services to assist. To confirm the presence or absence of radioactive materials it is important that the RACE team undertake a radiation survey as part of its initial incident response procedures. Expertise in appropriate use of radiation detection equipment is critical to satisfactorily discounting or demonstrating the presence of radioactive materials in an incident, particularly where chemicals are involved.

In cases where radioactive materials are involved or where it is suspected that radioactive materials may be involved in the incident, the RACE officer must promptly notify Radiation Health. Following receipt of the initial advice, Radiation Health will then take control of the management of the radiation-related aspects of the incident.

#### *Notification through QPS*

The QPS officer responding to such situations must, after consultation with QFRS, contact Radiation Health.

#### *Direct notification to Radiation Health*

In many situations, the presence of a radiation hazard will be obvious from labels on packages etc. When an incident that is known to involve a radiation hazard is encountered, Radiation Health should be contacted directly. If Radiation Health is notified of an incident directly, it will be responsible for initiating any required multi-agency emergency response as appropriate through QPS.

Figure 1 describe procedures for notification of a radiological incident.

### **Incident notification in other parts of Queensland**

Radiation Health may be notified of an incident in rural or regional Queensland through QPS or other agencies.

In the event of a radiological incident occurring at a location outside the Brisbane metropolitan area, Radiation Health, may direct the facility radiation safety officer, or other persons, or officers of Queensland Health who have appropriate radiation safety training and equipment in that location, to supervise the response actions. Depending on the initial advice about the incident, Radiation Health may, in the interest of public health, respond directly to such incidents or use the services of other Queensland Health professionals or other radiation safety professionals as part of its on-site response to the incident to provide on-site advice about the incident and to supervise on-site radiation-related activities.

### **Response actions – following notification of an incident**

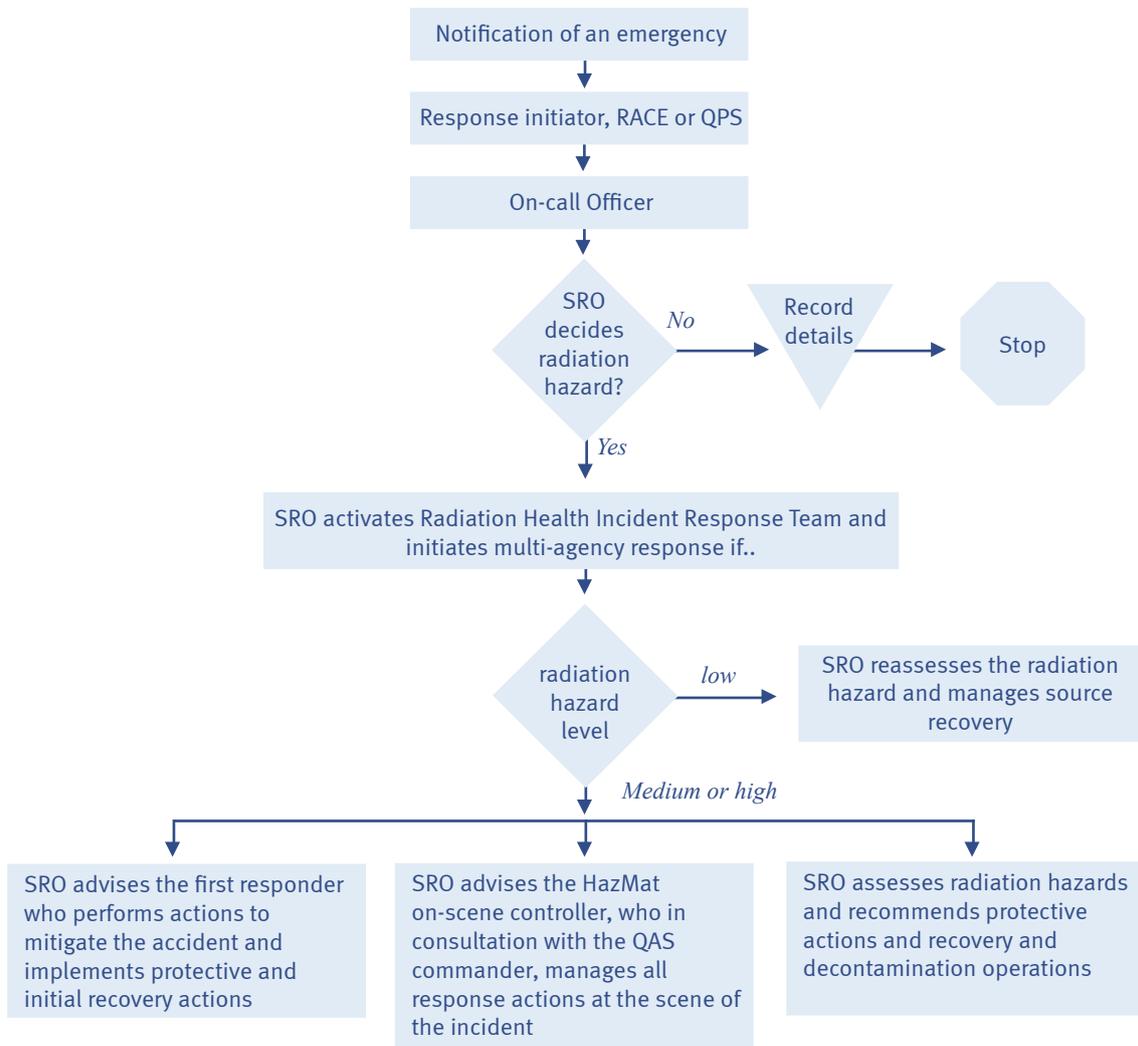
The Radiation Health on-call officer on receiving notification of an incident will advise the SRO. The SRO will assess the public health impact of the incident. If he or she suspects that the actual or suspected level of hazard is low, the SRO will initiate the Radiation Health Incident Response Team and direct/perform recovery and decontamination operations as appropriate.

If the level of hazard is medium or high the SRO will, in consultation with other emergency response agencies, initiate an appropriate multi-agency response to the incident in accordance with this Plan.

If the SRO is of the opinion that the emergency is not able to be satisfactorily managed using State resources, he or she may choose to recommend the engagement of radiation safety experts from interstate or Commonwealth jurisdictions.

Figure 1 describes response procedures following the notification of a radiological incident.

Figure 1: Response to notification of a radiological incident



## Part 4 - Communication

Communication with the media and the public is an essential part of emergency response preparedness plans. Experience has shown that failure to have adequate communication arrangements in place and the commitment of communication resources at the time of the emergency can seriously hinder actions to bring the emergency under control, the implementation of longer term remediation measures and the credibility of the Authorities.

In dealing with any radiological incident it must be recognised that there is a high level of public sensitivity to any issue relating to “radiation” and “radioactivity”. Therefore, the mental distress and anxiety of affected persons should be one of the key considerations in determining appropriate response and communicative actions including advice to affected and potentially affected communities.

### State agencies

The radiation-related information provided to other emergency service providers during a radiological incident will be managed by the SRO. On receiving notification of an incident Queensland Health in concert with the QPS will be responsible for mobilising other emergency service providers, if they have not already been notified through other means. Any radiation-related warnings and advice to State agencies should be cleared by the SRO during this period.

For deliberate releases any advice provided to the media must be cleared by the Police Forward Commander/Police Commander before its release.

### Within Queensland Health

On being notified of an incident which may be considered significant, the SRO will notify the Manager, Environmental Health Unit. The Manager will be responsible for notifying and mobilising relevant Queensland Health resources that have been requested but not already mobilised by the SRO. The Manager will be responsible for notifying and keeping informed senior departmental officers including the State Manager, Public Health Services. The Manager will also be responsible for coordinating information relating to the incident through the Public Health Services’ media liaison officer.

Under the instruction of the SRO, the on-call officer must mobilise the Radiation Health Incident Response Team. Following initial assessment of the situation the SRO may also request that other radiation safety experts within Queensland Health be called to provide assistance to the Radiation Health Incident Response Team. Typically such officers will form part of the Radiation Health Monitoring or Decontamination Units.

### Media

Media releases during multi-agency responses should only be made through a single outlet and are the responsibility of QPS. However, the preparation of media releases about radiation-related incidents should be undertaken in liaison with the Queensland Health Public Health Services media liaison officer and SRO who will ensure that the content of media releases is factual and objective and confined to matters that are in the public interest such as matters dealing with public safety.

Members of the Radiation Health Incident Response Team must not contact or have any dealings with the public or the media.

## Part 5 - Recovery and monitoring

Recovery operations may need to be conducted in order to be able to relax restrictions initially imposed or to obviate the need for additional protection measures in the longer term.

### Source recovery

There are many variables to be considered in the recovery of a found source or mitigation of the consequences of a radiological incident.

A sealed source may require only appropriate handling to limit exposure and proper packaging to effect its recovery, while a solid, but loose or unsealed radioactive material may require extensive resources and lengthy procedures to ensure there is no unnecessary residue and consequent exposure.

Radioactive materials in unsealed form, e.g. liquids or powders, may not be easily or quickly recoverable without the possibility of spreading contamination. In such cases, where the material may become mixed with soil, water or debris as a result of an accident, it may be advisable to defer consideration of the recovery, decontamination and disposal until a thorough analysis of the situation can be developed.

The nature of the incident, physical size and activity of the source, and the available resources are among the key factors that will determine the scope and feasibility of recovery activities. Final disposal of the radioactive materials may have to await the conclusion of any judicial process or criminal prosecution and may require a court order before eventual disposal can be implemented.

Radiation Health will manage the source recovery as appropriate.

### Environmental impacts

Contamination of the environment by radiological material may pose significant health, environmental and economic issues. Decontamination of land and property after an incident will be aimed at reducing the level of contamination so that the potential for resuspension or unacceptable dose rates will be acceptably low and the evacuated or relocated people can return. The extent and degree of decontamination necessary will depend partly on the cost versus benefit assessment undertaken as part of the remediation analysis.

Radiation Health is the administering authority under the *Environmental Protection Act, 1994* for land contaminated with radioactive materials. It will therefore ensure that the radiation health impacts are acceptably low prior to the release of a site for use. Where contaminated land presents a public health risk the incident site may need to be isolated and secured from public use. Depending upon the level of contamination, things that are contaminated with radioactivity may be taken into the permanent or temporary custody of Radiation Health. For incidents involving the deliberate release of radioactive material the SRO will take into custody any contaminated item that may be regarded as evidence and advise QPS accordingly. Permanently contaminated things that are not otherwise able to be dealt with will be stored at Queensland's Radioactive Waste Store near Esk, Queensland.

### Community impacts

The system of radiation protection promulgated under the *Radiation Safety Act, 1999* classifies exposure to radiation into three groups: medical, occupational, and public. The *Radiation Safety Regulation, 1999* prescribes dose limits for occupational and public exposures.

The legislation specifies that the effective dose received by a member of the public must not exceed 1 mSv in a year. The protective measures that are recommended by peak national and international radiation protection agencies for major radiological incidents are sheltering and evacuation. Stable iodine tablets are provided to persons who are likely to be exposed during incidents involving the release of radioactive iodine. Post-incident dose assessments of affected persons will be provided by the SRO following a full investigation of the incident.

While sheltering and evacuation are short term protective measures, other protective measures may need to be considered that are likely to be more prolonged such as temporary relocation or permanent resettlement of people away from the contaminated area. These longer term decisions may only be able to be made following a thorough post-incident assessment.

Intervention to control contamination of foodstuffs will, again, only be able to be addressed following a post-incident assessment. Controls may need to be placed at different stages in the production and distribution of foods in to order to ensure food safety. Queensland Health will liaise with appropriate authorities and coordinate any measures that may be necessary in this regard.

## Part 6 - Review of the plan

A review of this Plan is to be conducted subsequent to:

- the use of the Plan in facilitating a multi-agency radiological incident response
- exercises designed to practise or test aspects of the Plan
- alterations to the roles or responsibilities of any agency involved in the Plan
- CBR occurrences or other radiological incidents external to Queensland or new technology which suggests a review should be carried out

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A requirement exists for an automatic review every two years, regardless of other review indications as mentioned above.

### **Responsibility for review**

Radiation Health, Queensland Health is responsible for initiating a review of the Plan.

## Annex A

### **Radiation Health Incident Response Team**

The Radiation Health Incident Response Team is comprised of the State Radiation Officer (SRO), Liaison Officer, Decontamination and Radiation Monitoring Units. The SRO may also appoint an On-site Radiation Health Controller who will be responsible for the coordination of the radiation safety related response actions at the site of the incident.

The SRO will appoint persons within Queensland Health as members of the Team.

The SRO will appoint key officers within Radiation Health as the:

#### **Liaison Officer**

The Liaison Officer is an officer of the Radiation Health Incident Response Team and is responsible for coordinating information between SRO, Police Forward Commander, QFRS HazMat Controller, and Decontamination and Radiation Monitoring Unit Coordinators. In multi-agency responses this person will become the Radiation Health On-site Controller.

#### **Decontamination Unit Coordinator**

The Decontamination Unit Coordinator is responsible for coordinating the decontamination operations during a radiological incident. The Decontamination Unit will consist of members who are radiation, health, therapy and medical physicists and other radiation safety professionals from within Queensland Health. Persons from other agencies e.g. QFRS and the CHEM Unit, who have received training and knowledge in decontamination procedures may be also be authorised by the SRO to be part of this team.

#### **Radiation Monitoring Unit Coordinator**

The Radiation Monitoring Unit Coordinator is responsible for co-ordinating the radiation monitoring operations in the event of a radiological incident. The key role of this person is to map the site affected by radioactive material to establish HazMat control zones.

The Radiation Monitoring Unit may consist of radiation, health, therapy and medical physicists and other radiation safety professionals from within Queensland Health. Persons from other agencies e.g. QFRS and the CHEM Unit, who have received training and knowledge in decontamination procedures may be also be authorised by the SRO to be part of this team.

## References

1. International Atomic Energy Agency, IAEA-TECDOC-1162, *Generic procedures for assessment and response during a radiological emergency; August 2000.*
2. International Atomic Energy Agency, Safety Series No. 109, *Intervention Criteria in a Nuclear or Radiation Emergency; 1994.*
3. International Atomic Energy Agency, Safety Series No. 115, *International Basic Safety Standards for Protection against Ionizing Radiation and for the Safety of Radiation Sources, 1996.*
4. *Radiation Safety Act, 1999.*
5. *Radiation Safety Regulation, 1999.*
6. ARPANSA Guidance Manual, Technical Report Series No 131 – *Medical Management of individuals involved in Radiation Accidents, August 2000.*
7. State Chemical, Biological, Radiological (CBR) Plan, 4 October 2004.
8. State Chemical/Hazardous Materials (HazMat) Plan, 4 October 2004.