

MODEL EMERGENCY RESPONSE PLANS AND PROCEDURES

I.1 Introduction

The action plans prescribed in these procedures should be implemented in the event of occurrence of an emergency involving a Gamma Irradiation Chamber (GIC). The criteria for declaring and for terminating an emergency, as stipulated should be adhered to.

I.2 Emergency Situations

The following emergency situations may occur during transportation, installation, routine operation, decommissioning and disposal of GIC unit.

- (a) Receipt of GIC from the supplier in a damaged condition
- (b) Loss or theft of GIC during transport
- (c) Damage to the GIC during transport
- (d) Mechanical damage to the GIC unit during storage at the site prior to installation
- (e) Damage to the GIC, if any, during installation and commissioning
- (f) Radiation levels in excess of the baseline/normal values recorded during installation of the GIC by the manufacturer/supplier
- (g) Fire incident, explosion or natural disaster such as earthquake etc. at GIC installation location
- (h) Malevolent actions by anti-social elements leading to damage of GIC.

Any person noticing any of the above mentioned emergency situations should immediately bring to the notice of Employer/Licensee/RSO of the institution.

Action plans that should be implemented for various emergency scenarios are as follows:

I.3 Emergency Scenarios

- (a) Receipt of a GIC from the supplier in a damaged condition
- (b) Mechanical damage to the GIC unit during storage at the site prior to installation
- (c) Damage to the GIC, if any, during installation and commissioning

Action Plan

Licensee/RSO:

- (i) Check with carrier how the GIC device has got damaged.
- (ii) Inform the Competent Authority and the manufacturer/ supplier, that GIC unit is received in a damaged condition
- (iii) Measure the radiation levels around the device and record the observations. If the measured levels are in excess of the prescribed limits, report the matter to manufacturer/supplier and the Competent Authority
- (iv) Cordon off an area of at least 3 metres around any unsecured source(s)
- (v) Arrange for adequate security for the damaged GIC unit

- (vi) Act as advised by the Competent Authority manufacturer / supplier for corrective measures
- (vii) If the device is examined by the supplier and thereupon declared safe for installation and operation inform the employer
- (viii) Inform the Competent Authority regarding the action taken.

I.4 Emergency Scenario: Damage to the GIC during transport

Action Plan

Carrier:

- (i) Immediately inform the consignor and the consignee
- (ii) Cordon off an area of at least 3 metres around any unsecured source(s); and
- (iii) Inform the nearest police station for help.

Manufacturer/User institution:

- (i) Upon receipt of information about a transport accident involving GIC from the transporter, the consignor should inform to the Competent Authority, manufacturer and the Employer/Licensee of user institution
- (ii) The intimation should be sent immediately to the Crisis Management Group (CMG), DAE and AERB
- (iii) Responsible officer from manufacturer and/or user institution should be deputed to the site of accident with emergency accessories (eg. survey meter, TLD etc.) to assess the extent of physical damage to the GIC consignment and the radiation levels around it
- (iv) The decision for its further transportation to the manufacturers place or the users place should be based on the assessment of severity of the damage
- (v) In case of significant damage to the GIC and observation of excessive radiation level, adequate additional shielding should be provided for further transportation of GIC to manufacturer's place for rectification and necessary action.
- (vi) Upon controlling the emergency situation, intimate the Consignor, the Consignee and the Competent Authority.

I.5 Emergency Scenario: Loss or theft of GIC during transport

Action Plan

Carrier:

- (i) Immediately inform the Consignor, the Consignee, AERB and the Crisis Management Group (CMG), DAE, about the incident;
- (ii) Follow the instruction stipulated in emergency preparedness procedures sheet and TREM CARD; and
- (iii) Inform the nearest police station about the incident and seek help.

Consignor:

- (i) Upon receipt of information about an incident from transporter involving the GIC, the intimation should be sent immediately to the Crisis Management Group (CMG), DAE and the Competent Authority
- (ii) Immediately establish contact with nearest police station and seek its help by sensitizing the police officials regarding the seriousness of the incident in view of involvement of loss/untraced radioactive material consignment
- (iii) Responsible officer from the manufacturer and/or the user institution should be deputed to the location of the incident with emergency accessories (e.g. sensitive survey meter, direct reading pocket dosimeter, TLD etc.) to trace the consignment.
- (iv) In case, the consignment is not traceable:
 - (a) continue the efforts for locating the consignment;
 - (b) inform all the concerned authorities and get updates regularly till consignment is located;
 - (c) make public aware through media/news channels etc. in consultation with the Competent Authority, about the loss of radioactive material and its serious consequences, if the lost consignment is damaged while lying in public domain; and
 - (d) urge the public to immediately report to the nearest police station about such consignment, if they come across.
- (v) In case, the consignment is located:
 - (a) cordon off an area of at least 5 metres, around the GIC unit;
 - (b) assess the extent of damage in terms of physical integrity and radiation leakage that has occurred to the GIC;
 - (c) decision for its further transportation to manufacturers place or users place should be based on the assessment of severity of the damage;
 - (d) in case of significant damage to the GIC and observation of excessive radiation levels, adequate additional shielding should be provided for further transportation of GIC to manufacturer's place for rectification and necessary action, and
 - (e) upon controlling of the emergency situation, intimate all the concerned authorities about the same.

I.6 Emergency Scenario: Radiation levels in excess of the baseline/normal values on the GIC unit during routine operation**Action Plan****Licensee/RSO:**

- (i) Counter check the radiation levels with a calibrated and functional survey meter
- (ii) Provide temporary additional shielding to reduce the radiation levels to permissible limit

- (iii) Inform the manufacturer/supplier and the Competent Authority for further course of action
- (iv) Investigate personnel exposure, if any, to the radiation workers involved in the remedial action.

I.7 Emergency Scenario: Fire incident, explosion or natural disaster such as earthquake etc. at the GIC installation location

Action Plan

Licensee/RSO :

- (i) In case of fire or explosion contact the fire department for help
- (ii) RSO should provide guidance to fire fighters about the safe handling of the fire incident, as GIC is housed with a radioactive material, there is a possibility of loss of shielding integrity during fire and may cause higher radiation levels around GIC
- (iii) After controlling the fire measure the radiation levels to check the shielding loss if any. If required temporary additional shielding should be provided to reduce the radiation levels to permissible limit
- (iv) Check the radiation contamination, if any
- (v) Inform the manufacturer/supplier and Competent Authority for further course of action
- (vi) Investigate personnel exposure, if any, to the radiation workers involved in the remedial action.

The Employer/Licensee/RSO should submit a detailed report on the fire incident, with radiation exposures to personnel, if any, to the Competent Authority.

Manufacturer/Supplier:

- (i) On receipt of information, responsible officer from manufacturer should be deputed to the institution to assess the extent of damage in terms of physical and radiation leakage occurred due to the fire accident.
- (ii) Repair of GIC for re-use or decommissioning can be taken up by the manufacturer based on the assessment of the damage.

I.8 Emergency Scenario: Malevolent actions by the anti-social elements leading to damage of the GIC

Action Plan

Licensee/RSO :

- (i) Close down the GIC facility to prevent access, depute the response force (Security personnel) to prevent unauthorized access
- (ii) Inform the nearest police, i.e. Law Enforcement Authority
- (iii) In case of damage, assess the situation and if needed, provide temporary

- additional shielding to reduce the radiation levels to permissible limit
- (iv) In case of fire or explosion contact the fire department for help and follow the procedures as given in fire incident
 - (v) Inform CMG, DAE, Competent Authority and manufacturer/supplier
 - (vi) Investigate personnel exposure, if any, to the radiation workers involved in the remedial action.

The Employer/Licensee/RSO should submit a detailed report on the incident, with radiation exposures to personnel, if any, to Competent Authority.

I.9 List of Important Contact Numbers for Emergency

List of important personnel/agencies to be contacted in the event of an emergency should include the following. This list should be displayed in GIC room as well as available with all the personnel who have a role in the emergency plan.

Name of Person/ Agency	Designation	Mobile Number	Address		Telephone No	
			Office	Residence	Office	Residence
Employer						
Licensee						
RSO						
Security Officer						
Fire Brigade						
Local Police						
Local Hospital						
Manufacturer/Supplier						
AERB						
CMG, DAE						
Any other relevant Authority						