Northern Ireland
Fire & Rescue Service

STANDARD OPERATING PROCEDURE NO 6

Generic Hazmat Incidents

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VERSION CONTROL

This document and subsequent amendments will be issued by the Emergency Response Department, Northern Ireland Fire & Rescue Service (NIFRS) Headquarters.

Amendments are detailed as below:

No	Issued	Amendment	Prepared by	Approved by
1	22/02/2002	Initial issue of Standard Operating Procedure (SOP)	Divisional Officer (DO) (Operations Policy)	DO (Operations Policy)
2	22/08/2014	Review of SOP - consultation	Emergency Response (ER) Department	Assistant Chief Fire Officer (ACO) Ashford
3	19/11/2014	Issue of SOP following approval	ER Department	ACO Ashford

1 INTRODUCTION

1.1 Scope

This SOP has been developed to contribute to a safe system of work for incidents involving Hazardous Materials (Hazmats).

1.2 Pre-determined Attendance

2 Pumps;
1 Hazmat attributed vehicle;
1 Flexi Duty System Officer;
1 Hazmat Officer.

2 SIGNIFICANT HAZARDS AND CONTROL MEASURES

Significant Hazards	Control Measures
Class 1 – Explosives ▪ Blast; ▪ Fireball; ▪ Noise; ▪ Structural collapse.	▪ Cordons 100 m, 200 m, 400 m or greater for known sites. ▪ Inform Police Service of Northern Ireland/Explosive Ordnance Disposal. ▪ Defensive tactics if no life risk. ▪ Safe areas for firefighting if required. ▪ Protect exposures. ▪ Minimise water run-off. ▪ Access/egress maintained.
Class 2 – Gases ▪ Flammable/compressed - Blast wave; - Fireball; - Cylinder fragments; - Structural damage. ▪ Toxicity; ▪ Cold burns.	▪ Identify contents by cylinder/colour/ markings. ▪ Cordons. ▪ Gas monitors. ▪ Note activation of pressure relief valves. ▪ Gas Tight Suits (GTS) and Additional Personal Protection (APP) code. ▪ Use defensive tactics if there is no life risk. ▪ Safe areas for firefighting if required. ▪ Protect exposures/cool cylinders. ▪ Minimise water run-off. ▪ Access/egress maintained.

Significant Hazards	Control Measures
Class 3 – Flammable liquids ▪ Unignited leak; ▪ Fire.	▪ Remove ignition sources. ▪ Stop leak if practicable. ▪ Contain leak. ▪ Gas monitors if necessary. ▪ Consider foam suppression/water sprays. ▪ Identify correct extinguishing media for size of fire – water, CO_2, dry powder, foam, etc. ▪ Cordons. ▪ Blanket flowing fires at farthest point and work inwards.
Class 4 – Flammable solids ▪ Substances liable to spontaneous combustion; ▪ Substances, which, on contact with water, emit flammable gases.	▪ Avoid mixing with other substances due to potential reaction. ▪ Avoid plume as it may contain other harmful materials. ▪ Minimise disturbing dusts. ▪ Breathing Apparatus and Personal Protective Equipment (PPE). ▪ Eliminate ignition sources. ▪ Cordons. ▪ Gas monitors.
Class 5 – Oxidising substances and organic peroxides ▪ Contain oxygen and support combustion; ▪ Spontaneous combustion; ▪ Sensitive to heat, shock, friction; ▪ Toxicity; ▪ Water reactive.	▪ Cordons. ▪ Be aware of sudden container failure. ▪ Separate oxidising agents from fuels. ▪ Cool containers. ▪ Consider structural cover if firefighting, particularly with organic peroxides. ▪ Consider lashed branches/monitors. ▪ Avoid skin contact. ▪ Avoid use of water on water reactive agents.
Class 6 – Toxic and infectious substances ▪ Death or injury	▪ Avoid contact – inhalation, absorption, ingestion, injection. ▪ Gas monitoring. ▪ Check Workplace Exposure Limits (WELS) – TWA (Time Weighted Average 8 hour's exposure) STEL (Short Term Exposure Limit 15 minutes). ▪ Approach upwind (FIREMET). ▪ Minimal water in fire and consider run-off. ▪ Cordons. ▪ Specialist advice from site and Public Health Agency. ▪ No eating, drinking, smoking at an incident. ▪ PPE and decontamination.

	▪ Health monitoring.
Significant Hazards	**Control Measures**
Class 7 – Radioactive material ▪ Irradiation/contamination; ▪ Alpha radiation; ▪ Beta radiation; ▪ Gamma radiation; ▪ X-rays.	▪ Time, distance, shielding – As Low As Reasonably Practicable (ALARP). ▪ Isolating power supply will stop X-ray radiation being generated. ▪ Avoid exposure of material to open cuts/skin. ▪ Request Detection, Identification and Monitoring (DIM) and issue Electronic Personal Dosimeters. ▪ Cordons. ▪ Request Regional Medical Physics Service to attend.
Class 8 – Corrosive material ▪ Chemical burns from acids/alkalis; ▪ May act as oxidising agents; ▪ Production of flammable/toxic gases; ▪ Slippery surfaces from spillages; ▪ Some are water reactive in nature.	▪ Cordons – avoid unnecessary exposure. ▪ GTS and PPE. ▪ Gas monitoring. ▪ Seek specialist advice. ▪ Consider the environmental impact of any incident involving these materials and seek specialist advice on containment/dispersal.
Class 9 – Miscellaneous dangerous substances and articles ▪ Hazard in transportation that is not classified under any other class	▪ Cordons. ▪ Minimum exposure of crews. ▪ GTS/PPE. ▪ Determine environmental impact of substance.

3 OPERATIONAL CONSIDERATIONS

3.1 EN ROUTE

Immediate Considerations

- Consider additional Fire Service resources you may require on arrival.
- Allocate roles to crew members.
- Consider Significant Hazards/Control Measures above.

Think through the phases of Managing Incidents

- Decision Making Model

  - Incident information.
  - Resources information.
  - Hazards and safety information.
  - Prioritise objectives.
  - Plan.
  - Communicate and control.
  - Re-evaluate.

- Consider Tactics

  - Initial actions.
  - Brief crews.
  - Life/no life risk.
  - Gain information of type of chemical involved.
  - Seek advice if necessary.
  - Decontamination strategy if required.
  - De-brief.

- Officer-in-Charge Considerations

  - Focus on safety throughout.
  - Direct operations by standing back.
  - Liaise with other agencies.

3.2 IN ATTENDANCE

Arrival

- Careful approach.
- Safe appliance positioning.
- Dismount on the safe side.

Initial Actions

- Gain information from the occupier on:

  - location of persons, if any;
  - building layout.

- Carry out a Dynamic Risk Assessment.
- Prioritise objectives and communicate plan.

Brief Crews

- Prioritise.
- Plan.
- Hazards.
- Control measures.

Rescues

- Carry out time-critical rescues.

Hazmat Officer

- The Hazmat Officer will provide advice to the Incident Commander in relation to managing the incident specifically relating to the properties of the substance, levels of PPE, type of decontamination, subsequent health monitoring and recording of any exposure.

3.3 POST-INCIDENT

Medical Attention

- Medical attention is to be sought as appropriate.

De-brief

- Carry out and feedback as appropriate.

Equipment Issues

- Replenish items used.
- Submit defects.
- Source replacement equipment via District.

Incident Recording Form (IRF)

- Complete IRF within 21 days.

Accidents or Near Misses

- Accidents are to be fully investigated and reported as per normal procedures.
- Near misses are to be reported as per normal procedures.

Decontamination of Fire Kit

- Standard procedures are to be followed.

4 PRE-INCIDENT PREPARATION

4.1 Relevant Literature

This SOP is supported by the following Training Notes, which are available from the Global Folder at G:\Training\Training Notes:

- HazMat 01 – Gas Tight Suits;
- HazMat 02 – Environmental Considerations;
- HazMat 03 – Hazardous Materials;
- HazMat 04 – Compressed Gases;
- HazMat 05 – Radiation;
- HazMat 06 – Agrochemicals;
- HazMat 08 – CBRN Rapid Deployment Shelter.

4.2 Training

The following training shall be carried out, in accordance with the Area Training Planner, to prepare in advance for Hazmat incidents.

- Application of the Decision Making Model.
- Carrying out a Dynamic Risk Assessment.
- Incident Command procedures.
- Hazmat Response awareness, including:
  - Mass Decontamination/DIM;
  - Hazmat vehicles and equipment;
  - Hazmat Officers;
  - Specialist advice available to Incident Commanders at radiation incidents.

All training must be recorded on the Tracking & Training database to provide an effective audit trail.

4.3 Pre-planning

It is beneficial, where practical, to carry out these activities:

- Use SOP 12 process to gather all relevant Risk Critical Information relating to sites with a radiation hazard.
- Gain knowledge of the additional resources (internal and external) that can be called on to assist.
- Liaise with on-site specialists to develop effective site response plans.
- Complete operational exercises on known premises.
- Carry out familiarisation visits to premises.
- Test, maintain and stow safely all radiation related PPE and equipment.