



*World Bank/OECS Emergency Recovery and Disaster Management Project*

## **Government of Saint Lucia**

# **Hazardous Materials Response Plan**

*Document of the Saint Lucia National Emergency Management Plan*

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*[sgd] Dermot Saltibus*

*Approved by  
[HazMat Committee]*

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*June 22, 2006*

*[Date]*

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*Approved by  
[NEMAC]*

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*July 26, 2006*

*[Date]*



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## PART I. GENERAL INFORMATION.

### 1.- Acronyms/Abbreviations.

|          |                                                                     |
|----------|---------------------------------------------------------------------|
| AAR      | Association of American Railroads. (US).                            |
| ASTM     | American Society for Testing and Materials.                         |
| BLEVE    | Boiling Liquid Expanding Vapour Explosion                           |
| Bq       | Becquerels                                                          |
| C        | Celsius or Centigrade Degrees.                                      |
| CANUTEC  | Canadian Transport Emergency Centre                                 |
| CARICOM  | The Caribbean Community                                             |
| CDERA    | Caribbean Disaster Emergency Response Agency                        |
| CDRU     | CARICOM Disaster Relief Unit                                        |
| CEHI     | Caribbean Environmental Health Institute                            |
| CFR      | US Code of Federal Regulations                                      |
| CGM      | Combustible Gas Meter                                               |
| C&W      | Cable and Wireless.                                                 |
| CHEMTREC | Chemical Transportation Emergency Centre                            |
| CIDA     | Canadian International Development Agency                           |
| Cu       | Curies.                                                             |
| DGR      | Dangerous Goods Regulations (IATA)                                  |
| DOD      | U.S. Department of Defence.                                         |
| DOT      | U.S. Department of Transportation.                                  |
| DPRA     | Disaster Preparedness and Response Act (Saint Lucia)                |
| ECDG     | Eastern Caribbean Donor Group                                       |
| EOC      | Emergency Operations Centre                                         |
| EPA      | U.S. Environmental Protection Agency.                               |
| ERG2000  | Emergency Response Guidebook                                        |
| EU       | European Union                                                      |
| F        | Fahrenheit Degrees.                                                 |
| FAVA/CA  | The Florida Association of Voluntary Agencies for Caribbean Action. |
| GIS      | Geographical Information Systems                                    |
| GIS      | Government Information Service of Saint Lucia (Also SLU/GIS)        |
| HAZMAT   | Hazardous Materials                                                 |
| HMP      | The Saint Lucia National Hazardous Materials Plan                   |
| IAEA     | International Atomic Energy Agency.                                 |
| IAFF     | International Association of Fire Fighters                          |
| IATA     | International Air Transport Association.                            |
| IBC      | International Bulk Chemical Code                                    |
| ICAO     | International Civil Aviation Organization.                          |
| ICS      | Incident Command System                                             |
| IGC      | International Gas Carrier Code                                      |
| IMO      | International Maritime Organisation                                 |
| KPa      | Kilo Pascals                                                        |

|                  |                                                          |
|------------------|----------------------------------------------------------|
| LC <sub>50</sub> | Lethal Concentration Fifty                               |
| LD <sub>50</sub> | Lethal Dose Fifty                                        |
| LEL              | Lower Explosive Limit.                                   |
| LSA              | Low Specific Activity                                    |
| LUCELEC          | Saint Lucia Electricity Services LTD.                    |
| MOH              | Ministry of Health                                       |
| MOPD             | Ministry of Physical Development.                        |
| MOW              | Ministry of Works.                                       |
| MSDS             | Material Safety Data Sheet.                              |
| NDMP             | Saint Lucia National Disaster Management Plan (1996).    |
| NEMO             | National Emergency Management Office                     |
| NEMP             | National Emergency Management Plan (2002-2003)           |
| OECS             | Organisation of Eastern Caribbean States                 |
| OFDA             | US Office of Foreign Disaster Assistance                 |
| OPAC             | Oil Pollution Action Committee                           |
| ORM              | Other Regulated Material.                                |
| OSC              | On Scene Commander                                       |
| OSP              | The Saint Lucia National Oil Spill Plan                  |
| PAHO             | Pan American Health Organisation                         |
| PIO              | Principal Information Officer (SLU-GIS)                  |
| PM               | The Honourable Prime Minister of Saint Lucia.            |
| PPE              | Personal Protection and Clothing Equipment.              |
| ppm              | Parts per million.                                       |
| Psi              | Pounds per square inch.                                  |
| RQ               | Report Quantity                                          |
| RSLPF            | Royal Saint Lucia Police Force                           |
| SARP             | International Standards and Recommended Practices.       |
| SCBA             | Self Contained Breathing Apparatus.                      |
| SCT              | Secretariat of Transport and Communications of Mexico    |
| SDEU             | Sustainable Development and Environment Unit.            |
| SFPC             | Structural Fire Fighting Protection Clothing.            |
| SLASPA           | Saint Lucia Air and Sea Ports Authority                  |
| SLSWMA           | Saint Lucia Solid Waste Management Authority             |
| SLU-GIS          | Government Information Service (Saint Lucia)             |
| SLU/NEMP         | Saint Lucia National Emergency Plan                      |
| SOLAS            | International Convention for Safety of Life at Sea (IMO) |
| SOP              | Standard Operation Procedures                            |
| TC               | Transport Canada                                         |
| UFC              | Uniform Freight Classification.                          |
| UN               | United Nations.                                          |
| UNECE            | United Nations Economic Commission for Europe            |
| WHO              | World Health Organisation.                               |

## **2.- Introduction.**

The Saint Lucia Hazardous Materials Response Plan is part of the Saint Lucia National Emergency Management Plan (SLU/NEMP) as follows:

**Table 2.1 The Saint Lucia National Emergency Management Plan SLU/NEMP**

| <b>Section</b> | <b>Subsection</b> | <b>Name of section</b>                             | <b>Name of Sub-section</b>                                                 |
|----------------|-------------------|----------------------------------------------------|----------------------------------------------------------------------------|
| <b>01</b>      |                   | The Saint Lucia National Emergency Management Plan |                                                                            |
| <b>02</b>      |                   | <b>Policies &amp; Guidelines</b>                   |                                                                            |
|                | 01                |                                                    | Donations and Importation of Relief Supplies Policy                        |
|                | 02                |                                                    | Emergency Shelter Management Policy                                        |
|                | 03                |                                                    | Emergency Housing Policy                                                   |
|                | 04                |                                                    | Mitigation Policy                                                          |
|                | 05                |                                                    | Travel Policy                                                              |
|                | 06                |                                                    | Management and Disposal of Dead Bodies in Disasters Policy                 |
| <b>03</b>      |                   | <b>National Emergency Plans</b>                    |                                                                            |
|                | 01                |                                                    | The Saint Lucia National Hurricane Plan                                    |
|                | 02                |                                                    | The Saint Lucia National Earthquake Response Plan                          |
|                | 03                |                                                    | The Saint Lucia National Volcanic Eruption Response Plan                   |
|                | 04                |                                                    | The Saint Lucia Oil Spill Contingency Plan                                 |
|                | 05                |                                                    | The Saint Lucia National Mitigation Plan                                   |
|                | 06                |                                                    | The Saint Lucia Stress Response Team Plan                                  |
|                | 07                |                                                    | The Saint Lucia National Flood Plan                                        |
|                | 08                |                                                    | The Saint Lucia National Hazardous Materials Plan.                         |
| <b>04</b>      |                   | <b>Sectoral Plans</b>                              |                                                                            |
|                | 01                |                                                    | The Ministry of Communications, Works, Transport and Public Utilities Plan |
|                | 02                |                                                    | The Saint Lucia National Emergency Health Sector Plan                      |
|                | 03                |                                                    | The Hospitality Industry Crisis Management Plan                            |
|                | 04                |                                                    | The Saint Lucia Private Sector Response Plan                               |
| <b>05</b>      |                   | <b>Specific Plans</b>                              |                                                                            |
|                | 01                |                                                    | Mass Crowd Events Plan                                                     |
|                | 02                |                                                    | Anse La Raye Evacuation Plan.                                              |
|                | 03                |                                                    | Model Plan for the District Disaster                                       |

|  |    |  |                                           |
|--|----|--|-------------------------------------------|
|  |    |  | Committees in Saint Lucia                 |
|  | 04 |  | The Saint Lucia Prison Emergency Plan     |
|  | 05 |  | The Port Authority Cruise Line Ships Plan |
|  | 06 |  | The Saint Lucia Seaports Contingency Plan |

The Saint Lucia National Hazardous Materials Plan will also be referred to as the Hazardous Materials Plan, as the Haz-Mat Plan or as the Plan. The Haz-Mat Plan is subsection 08 of section 03 of the Saint Lucia National Emergency Management Plan.

Currently, response against hazardous materials is done through the Saint Lucia National Oil Spill Contingency Plan. Now, with the Haz Mat Plan, it is intended to be more specific in the response against accidents involving hazardous materials others than hydrocarbons.

The Plan was written by Mr. Arturo Lopez-Portillo, Emergency Planning and Mitigation Advisor to the NEMO, within the World Bank/OECS Emergency Recovery and Disaster Management Project.

Since the response to a Haz-Mat incident would be similar to one to an oil spill and since e most of the response agencies would be the same, it is recommended that this plan be revised and executed by a Haz-Mat Sub-Committee under the Oils Spill Action Committee (OPAC).

The philosophy of this plan is that the Government of Saint Lucia is responsible for the general co-ordination of the response for the protection of the population and natural resources, but that the shipper/consignee are responsible for safety and preventive measures in the packaging, shipping, importing, storing, transportation, production, use, reuse and final disposal of the hazardous materials they handle. Therefore, the shipper/consignee is responsible to have trained personnel (drivers, employees, response teams) and equipment (control, confinement, recovery, protection, etc.) and are liable for any damage/cost to people, infrastructure, agriculture, wildlife, and natural resources (water, underground water, soil, subsoil) until the final rehabilitation and restoration of the damaged caused. This, of course, has be established in enacted laws and enforced as it is in other countries.

Beside this Plan and its Emergency Procedures, private companies handling hazardous materials must have their own emergency plans and emergency response procedures for the case of an incident involving the hazardous materials they handle. All plans and procedures must be compatible.

Whatever the responsibilities for any preparedness or response function, this plan highlights the need for the Government of Saint Lucia and the Private Sector to work together very closely in the planning and implementation of Haz-Mat preventive, preparedness, response and recovery activities.

This Plan intends, too, to make easier the response of the OPAC/HAZMAT Sub-Committee members by defining specific emergency procedures for hazardous substances other than hydrocarbons and for incidents others than spills.

The Haz Mat Plan follows a similar format that of the Oil Spill Plan and the Haz-Mat Emergency Procedures follow and identical format to those from the Oil Spill Plan. Emergency procedures from both plans are based in the document “Writing Emergency Procedures” designed in November 2002 within the World Bank/OECS Project.

## PART II. HAZARDOUS MATERIALS.

### **3.- Definitions/Glossary.**

Most of the Definitions have been taken from the UN Recommendations on the Transport of Dangerous Goods and from the US Code of Federal Regulation 49. Hazardous Materials Regulations; some have been modified.

Asphyxiant Gas. A gas that dilutes or replaces oxygen normally in the atmosphere.

Atmospheric gases. Air, nitrogen, oxygen, argon, krypton, neon and xenon.

Bureau of Explosives. The Bureau of Explosives (B of E) of the Association of American Railroads.

Becquerel. Standard International Unit of radioactivity equivalent to one disintegration per second.

Cargo aircraft means any aircraft, other than a passenger aircraft that is carrying goods or property.

Cargo aircraft only means an aircraft that is used to transport cargo and is not engaged in carrying passengers. The terms cargo aircraft only, cargo-only aircraft and cargo aircraft have the same meaning.

Cargo tank means a bulk packaging that:

- (1) Is a tank intended primarily for the carriage of liquids or gases and includes appurtenances, reinforcements, fittings, and closures
- (2) Is permanently attached to or forms a part of a motor vehicle, or is not permanently attached to a motor vehicle but which, by reason of its size, construction or attachment to a motor vehicle is loaded or unloaded without being removed from the motor vehicle; and
- (3) Is not fabricated under a specification for cylinders, intermediate bulk containers, multi-unit tank car tanks, portable tanks, or tank cars.

Cargo tank motor vehicle. A motor vehicle with one or more cargo tanks permanently attached to or forming an integral part of the motor vehicle.

Cargo vessel is any vessel other than a passenger vessel.

Carrier means any person, organisation or government undertaking the transport of dangerous goods by any means of transport. The term includes both carriers for hire or reward (known as common or contract carriers in some countries)

Class. Hazard Class or the category of hazard assigned to a hazardous material.

Competent Authority means a national agency responsible under its national law for the control or regulation of a particular aspect of the transportation of hazardous materials (dangerous goods). The term Appropriate Authority, as used in the ICAO Technical Instructions, has the same meaning as Competent Authority.

Compressed gas in solution. A compressed gas in solution is a non-liquefied compressed gas that is dissolved in a solvent.

Consignee means any person, organisation or government that is entitled to take delivery of a consignment.

Consignment means any package or packages, or load of dangerous goods, presented by a consignor for transport.

Consignor means any person, organisation or government that prepares a consignment for transport.

Containership means a cargo vessel designed and constructed to transport, within specifically designed cells, portable tanks and freight containers which are lifted on and off with their contents intact.

Crewmember means a person assigned to perform duty in an aircraft during flight time.

Cryogenic liquid. A cryogenic liquid means a refrigerated liquefied gas having a boiling point colder than -90 °C (-130 °F) at 101.3 kPa (14.7 psia).

Cylinder means a pressure vessel designed for pressures higher than 40 psia and having a circular cross section. It does not include a portable tank, multi-unit tank car tank, cargo tank, or tank car.

Dangerous Goods. See Hazardous Materials.

Division. A subdivision of a hazard class.

Drum means a flat-ended or convex-ended cylindrical packaging made of metal, fiberboard, plastic, plywood, or other suitable materials. This definition also includes packaging of other shapes made of metal or plastic (e.g., round taper-necked packaging or pail-shaped packaging) but does not include cylinders, jerricans, and wooden barrels or bulk packaging.

Elevated temperature material means a material which, when offered for transportation or transported in a bulk packaging:

- (1) Is in a liquid phase and at a temperature at or above 100°C (212°F);
- (2) Is in a liquid phase with a flash point at or above 37.8°C (100°F) that is intentionally heated and offered for transportation or transported at or above its flash point; or
- (3) Is in a solid phase and at a temperature at or above 240°C (464°F).

Flammable range. The term flammable range means the difference between the minimum and maximum volume percentages of the material in air that forms a flammable mixture.

Service pressure. The term service pressure means the authorized pressure marking on the packaging. For example, for a cylinder marked "DOT 3A1800", the service pressure is 12410 kPa (1800 psig).

Flash point means the minimum temperature at which a liquid gives off vapour within a test vessel in sufficient concentration to form an ignitable mixture with air near the surface of the liquid

Fuel tank means a tank other than a cargo tank, used to transport flammable or combustible liquid, or compressed gas for the purpose of supplying fuel for propulsion of the transport vehicle to which it is attached, or for the operation of other equipment on the transport vehicle.

Gas means a material that has a vapour pressure greater than 300 kPa (43.5 psia) at 50 °C (122 °F) or is completely gaseous at 20 °C (68 °F) at a standard pressure of 101.3 kPa (14.7 psia).

Hazard zone means one of four levels of hazard (Hazard Zones A through D) assigned to gases. A hazard zone is based on the LC50 value for acute inhalation toxicity of gases and vapours.

Hazardous material means a substance or material that has been determined it is capable of posing an unreasonable risk to health, safety, and property when stored, transported, used or transformed in commerce and/or industry, and has been designated as hazardous.

Hazardous substance. A material, including its mixtures and solutions.

Hazmat employee means a person who is employed by a HAZMAT employer and who in the course of employment directly affects hazardous materials transportation safety.

Hazmat employer means a person who uses one or more of its employees in connection with: transporting hazardous materials in commerce; causing hazardous materials to be transported or shipped in commerce; or representing, marking, certifying, selling, offering, manufacturing, reconditioning, testing, repairing, or modifying containers, drums, or packaging as qualified for use in the transportation of hazardous materials.

Hermetically sealed means closed by fusion, gasketing, crimping, or equivalent means so that no gas or vapour can enter or escape.

LD<sub>50</sub> for acute oral toxicity means that dose of the material administered to both male and female young adult albino rats that causes death within 14 days in half the animals tested. The number of animals tested must be sufficient to give statistically valid results and be in conformity with good pharmacological practices. The result is expressed in mg/kg body mass.

LD<sub>50</sub> for acute dermal toxicity means that dose of the material which, administered by continuous contact for 24 hours with the shaved intact skin (avoiding abrading) of an albino rabbit, causes death within 14 days in half of the animals tested. The number of animals tested must be sufficient to give statistically valid results and be in conformity with good pharmacological practices. The result is expressed in mg/kg body mass.

LC<sub>50</sub> for acute toxicity on inhalation means that concentration of vapour, mist, or dust which, administered by continuous inhalation for one hour to both male and female young adult albino rats, causes death within 14 days in half of the animals tested. If the material is administered to the animals as a dust or mist, more than 90 percent of the particles available for inhalation in the test must have a diameter of 10 microns or less if it is reasonably foreseeable that such concentrations could be encountered by a human during transport. The result is expressed in mg/L of air for dusts and mists or in mL/m<sup>3</sup> of air (parts per million) for vapours.

Liquefied compressed gas. A liquefied compressed gas means a gas that in a packaging under the charged pressure, is partially liquid at a temperature of 20 °C (68 °F).

Liquid. A material, other than an elevated temperature material, with a melting point or initial melting point of 20 °C (68 °F) or lower at a standard pressure of 101.3 kPa (14.7 psia).

Liquid phase means a material that meets the definition of liquid when evaluated at the higher of the temperature at which it is offered for transportation or at which it is transported, not at the 37.8°C (100°F) temperature specified in ASTM D 4359-84.

Low Specific Activity.

Mixture means a material composed of more than one chemical compound or element.

Motor vehicle includes a vehicle, machine, tractor, trailer, or semi trailer, or any combination thereof, propelled or drawn by mechanical power and used upon the highways in the transportation of passengers or property. It does not include a vehicle, locomotive, or car operated exclusively on a rail or rails, or a trolley bus operated by electric power derived from a fixed overhead wire, furnishing local passenger transportation similar to street-railway service.

Non-liquefied compressed gas. A non-liquefied compressed gas means a gas, other than in solution, which in a packaging under the charged pressure is entirely gaseous at a temperature of 20 °C (68 °F).

Operator. A person who controls the use of an aircraft, vessel, or vehicle.

Oxidizing gas means a gas that may, generally by providing oxygen, cause or contribute to the combustion of other material more than air does.

Oxygen generator (chemical) means a device containing chemicals that upon activation release oxygen as a product of chemical reaction.

Packages are the complete product of the packaging operation and its contents prepared for transport.

Packaging means a receptacle and any other components or materials necessary for the receptacle to perform its containment function in conformance with the minimum packing requirements of this subchapter.

Passenger. A person being carried on a vessel other than:

- (1) The owner or his representative;
- (2) The operator;
- (3) A bona fide member of the crew engaged in the business of the vessel who has contributed no consideration for his carriage and who is paid for his services; or
- (4) A guest who has not contributed any consideration directly or indirectly for his carriage.

Placarded car means a rail car that is placarded in accordance with the requirements of applicable regulations.

Public vessel means a vessel owned by and being used in the public service of the United States. It does not include a vessel owned by the United States and engaged in a trade or commercial service or a vessel under contract or charter to the United States.

Receptacle means a containment vessel for receiving and holding materials, including any means of closing.

Refrigerant gas or Dispersant gas. The terms Refrigerant gas and Dispersant gas apply to all non-poisonous refrigerant gases; dispersant gases (fluorocarbons) and mixtures thereof; and any other compressed gas having a vapour pressure not exceeding 260 psia at 54° C (130° F), used only as a refrigerant, dispersant, or blowing agent.

Residue means the hazardous material remaining in a packaging, including a tank car, after its contents have been unloaded to the maximum extent practicable and before the packaging is either refilled or cleaned of hazardous material and purged to remove any hazardous vapours.

Shipment means the specific movement of a consignment from origin to destination.

Shipper. Means any person, organisation or government responsible for the shipment of hazardous materials .

Solid means a material that is not a gas or a liquid.

Solution means any homogeneous liquid mixture of two or more chemical compounds or elements that will not undergo any segregation under conditions normal to transportation.

Technical name means a recognized chemical name or microbiological name currently used in scientific and technical handbooks, journals, and texts. Generic descriptions are authorized for use as technical names provided they readily identify the general chemical group, or microbiological group.

Trailer ship means a vessel, other than a carfloat, specifically equipped to carry motor transport vehicles and fitted with installed securing devices to tie down each vehicle. The term trailer ship includes Roll-on/Roll-off (RO/RO) vessels.

Train means one or more engines coupled with one or more rail cars, except during switching operations or where the operation is that of classifying and assembling rail cars within a railroad yard for the purpose of making or breaking up trains.

Trainship means a vessel other than a rail car ferry or carfloat, specifically equipped to transport railroad vehicles, and fitted with installed securing devices to tie down each vehicle.

Transport vehicle means a cargo-carrying vehicle such as an automobile, van, tractor, truck, semi trailer, tank car or rail car used for the transportation of cargo by any mode. Each cargo-carrying body (trailer, rail car, etc.) is considered a separate transport vehicle.

Vessel includes every description of watercraft, used or capable of being used as a means of transportation on the water.

UN Recommendations means the UN Recommendations on the Transport of Dangerous Goods.

UN standard packaging means a packaging conforming to standards in the UN Recommendations.

#### **4.- International Regulations.**

##### **4.1.- United Nations.**

The Recommendations on the Transport of Dangerous Goods are addressed to governments and to the international organizations concerned with safety in the transport of dangerous goods.

The first version, prepared by the United Nations Economic and Social Council's Committee of Experts on the Transport of Dangerous Goods, was published in 1956 (ST/ECA/43-E/CN.2/170).

In response to developments in technology and the changing needs of users, they have been regularly amended and updated at succeeding sessions of the Committee of Experts pursuant to Resolution 645 G (XXIII) of 26 April 1957 of the Economic and Social Council and subsequent resolutions.

At its nineteenth session (2-10 December 1996), the Committee adopted a first version of Model Regulations on the Transport of Dangerous Goods, which were annexed to the tenth revised edition of the Recommendations on the Transport of Dangerous Goods. This was done to facilitate the direct integration of the Model Regulations into all modal, national and international regulations and thereby enhance harmonization, facilitate regular up-dating of all legal instruments concerned, and result in overall considerable resource savings for the Governments of the Member States, the United Nations, the specialized agencies and other international organizations.

At its twentieth session (7-16 December 1998) and twenty-first session (4-13 December 2000), the Committee adopted various amendments to the Model Regulations and new provisions including, in particular, packing and tank instructions for individual substances, gases and articles and additional provisions for the transport of radioactive material.

By resolution 1999/65 of 26 October 1999, the Economic and Social Council extended the mandate of the Committee to the global harmonization of the various systems of classification and labelling of chemicals which are applicable under various regulations regimes, e.g.: transport; workplace safety; consumer protection; environment protection, etc.

The Committee was reconfigured and renamed "Committee of Experts on the Transport of Dangerous Goods and on the Globally Harmonized System of Classification and Labelling of Chemicals", supported with one sub-committee specialized in transport of dangerous goods and another one addressing the global harmonization of classification and labelling of chemicals.

At its first session (11-12 December 2002), the reconfigured Committee adopted a set of amendments to the Modal Regulations on the Transport of Dangerous Goods, concerning, inter

alia, the inclusion of new provisions (e.g.: transport of dangerous goods security; classification of substances hazardous to the aquatic environment, toxic by inhalation substances; packing instructions for refrigerated liquefied gases; transport of solid substances in bulk containers; approval systems for periodic inspection and testing of pressure receptacles) or revision of existing provisions (e.g.: list of dangerous goods, transport of infectious substances, medical wastes and genetically modified micro-organisms, etc.).

Close cooperation with the International Atomic Energy Agency (IAEA) also continued, and the provisions concerning the transport of radioactive material have been revised to align with the IAEA "Regulations for the Safe Transport of Radioactive Material", as revised and amended in 2003.

The thirteenth revised edition of the Recommendations takes account of all amendments that were adopted in December 2002 and consolidated in document ST/SG/AC.10/29/Add.1.

At its first session, the Committee adopted also amendments to the "Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria" (ST/SG/AC.10/29/Add.2), which will be reflected in the fourth revised edition of the Manual (ST/SG/AC.10/11/Rev.4), as well as the "Globally Harmonized System of Classification and Labelling of Chemicals" which will be published as document ST/SG/AC.10/30.

This publication has been prepared by the secretariat of the United Nations Economic Commission for Europe (UNECE) that provides secretariat services to the Economic and Social Council's Committee of Experts.

The Regulations can be consulted in the following web-page:

[http://www.unece.org/trans/danger/publi/unrec/rev13/13files\\_e.html](http://www.unece.org/trans/danger/publi/unrec/rev13/13files_e.html)

#### **4.2.- International Civil Aviation Organisation (ICAO).**

One of ICAO's chief activities is standardization, the establishment of International Standards, Recommended Practices and Procedures covering the technical fields of aviation: licensing of personnel, rules of the air, aeronautical meteorology, aeronautical charts, units of measurement, operation of aircraft, nationality and registration marks, airworthiness, aeronautical telecommunications, air traffic services, search and rescue, aircraft accident investigation, aerodromes, aeronautical information services, aircraft noise and engine missions, security and the safe transport of dangerous goods. After a Standard is adopted it is put into effect by each ICAO Contracting State in its own territories. As aviation technology continues to develop rapidly, the Standards are kept under constant review and amended as necessary.

The ICAO Council adopted amendments to the international standards and recommended practices (SARPs) contained in several annexes to the Convention on International Civil Aviation (Chicago, 1944). The amendments to annexes addressing the rules of the air, operation of aircraft, facilitation, aeronautical telecommunications, air traffic services, aerodrome design

and operations, environmental protection and the safe transport of dangerous goods by air become applicable on 4 November 1999.

ICAO informed Contracting States of the amendments and requested that States which disapprove of any part of an amendment register their disapproval with ICAO by 19 July 1999. Contracting States were also requested to inform ICAO by 4 October 1999 of any differences between their national regulations or practices and the amended annexes, as well as the date by which they expect to achieve compliance with the provisions of the revised annexes. Between the adopted amendments was Amendment 5 to Annex 18 (The Safe Transport of Dangerous Goods by Air).

Annex 18 - The Safe Transport of Dangerous Goods by Air.

In recent years the Organization established comprehensive provisions for the transport of dangerous goods by air in *Annex 18 - The Safe Transport of Dangerous Goods by Air*. Annex 18 makes binding the provisions of the associated document known as the "Technical Instructions for the Safe Transport of Dangerous Goods by Air", which are necessary for the safe preparation and transport of dangerous goods. To keep pace with the constant introduction of new substances and developments in packaging technology, the Technical Instructions are reissued every two years.

More information can be provided by ICAO at its web-page:

<http://www.icao.org/>

#### **4.3.- International Aviation Transport Association (IATA).**

The IATA Dangerous Goods Regulations (DGR) Manual is the industry standard for transportation of dangerous goods by air. It provides all provisions mandated by ICAO, and all rules agreed by airlines for safely handling of dangerous goods. The 44th edition of the DGR introduces changes and improvements to the Regulations, including detailed lists of individual articles and substances, the United Nations classifications, packing instructions and airline operational requirements.

More information can be obtained at IATA's Web-page:

<http://www.iata.org/index.htm>

#### **4.4.- International Maritime Organisation (IMO).**

The SOLAS Convention.

The International Convention for Safety of Life at Sea (SOLAS Convention) in its successive forms is generally regarded as the most important of all international treaties concerning the safety of merchant ships. The first version was adopted in 1914, in response to the 'Titanic' disaster, the second in 1929, the third in 1948 and the fourth in 1960.

The 1960 Convention - which was adopted on 17 June 1960 and entered into force on 26 May 1965 - was the first major task for IMO after the Organization's creation and it represented a considerable step forward in modernizing regulations and in keeping pace with technical developments in the shipping industry.

The intention was to keep the Convention up to date by periodic amendments but in practice the amendments procedure incorporated proved to be very slow. It became clear that it would be impossible to secure the entry into force of amendments within a reasonable period of time.

As a result, a completely new Convention was adopted in 1974 which included not only the amendments agreed up until that date but a new amendment procedure - the tacit acceptance procedure - designed to ensure that changes could be made within a specified (and acceptably short) period of time.

Instead of requiring that an amendment shall enter into force after being accepted by, for example, two thirds of the Parties, the tacit acceptance procedure provides that an amendment shall enter into force on a specified date unless, before that date, objections to the amendment are received from an agreed number of Parties.

As a result the 1974 Convention has been updated and amended on numerous occasions. The Convention in force today is sometimes referred to as SOLAS, 1974, as amended.

#### Chapter VII - Carriage of dangerous goods

The regulations are contained in three parts:

Part A - Carriage of dangerous goods in packaged form or in solid form or in bulk - includes provisions for the classification, packing, marking, labelling and placarding, documentation and stowage of dangerous goods. Contracting Governments are required to issue instructions at the national level and the Chapter refers to International Maritime Dangerous Goods (IMDG) Code, developed by IMO, which is constantly updated to accommodate new dangerous goods and to supplement or revise existing provisions.

Part B covers Construction and equipment of ships carrying dangerous liquid chemicals in bulk and requires chemical tankers built after 1 July 1986 to comply with the International Bulk Chemical Code (IBC Code).

Part C covers Construction and equipment of ships carrying liquefied gases in bulk and gas carriers constructed after 1 July 1986 to comply with the requirements of the International Gas Carrier Code (IGC Code).

Part D includes special requirements for the carriage of packaged irradiated nuclear fuel, plutonium and high-level radioactive wastes on board ships and requires ships carrying such products to comply with the International Code for the Safe Carriage of Packaged Irradiated Nuclear Fuel, Plutonium and High-Level Radioactive Wastes on Board Ships (INF Code).

From 1 January 2004, the chapter will require carriage of dangerous goods to be in compliance with the relevant provisions of the International Maritime Dangerous Goods Code (IMDG Code). This is due to amendments adopted by IMO in 2002, which are expected to enter into force on 1 January 2004.

The IMDG Code was first adopted by IMO in 1965 and has been kept up to date by regular amendments, including those needed to keep it in line with United Nations Recommendations on the Transport of Dangerous Goods which sets the basic requirements for all the transport modes

### International Maritime Dangerous Goods (IMDG) Code.

The International Maritime Dangerous Goods (IMDG) Code was developed as a uniform international code for the transport of dangerous goods by sea covering such matters as packing, container traffic and stowage, with particular reference to the segregation of incompatible substances.

The development of the IMDG Code dates back to the 1960 Safety of Life at Sea Conference, which recommended that Governments should adopt a uniform international code for the transport of dangerous goods by sea to supplement the regulations contained in the 1960 International Convention for the Safety of Life at Sea (SOLAS).

A resolution adopted by the 1960 Conference said the proposed code should cover such matters as packing, container traffic and stowage, with particular reference to the segregation of incompatible substances.

A working group of IMO's Maritime Safety Committee began preparing the Code in 1961, in close co-operation with the United Nations Committee of Experts on the Transport of Dangerous Goods, which in a 1956 report had established minimum requirements for the transport of dangerous goods by all modes of transport.

Since its adoption by the fourth IMO Assembly in 1965, the IMDG Code has undergone many changes, both in appearance and content to keep pace with the ever-changing needs of industry. Amendments which do not affect the principles upon which the Code is based may be adopted by the MSC, allowing IMO to respond to transport developments in reasonable time.

Amendments to the IMDG Code originate from two sources; proposals submitted directly to IMO by Member States and amendments required to take account of changes to the United Nations Recommendations on the Transport of Dangerous Goods which sets the basic requirements for all the transport modes.

Amendments to the provisions of the United Nations Recommendations are made on a two-yearly cycle and approximately two years after their adoption, they are adopted by the authorities responsible for regulating the various transport modes. In that way a basic set of requirements applicable to all modes of transport is established and implemented, thus ensuring that difficulties are not encountered at inter-modal interfaces.

#### **4.5.- The North America Emergency Response Guidebook 2000.**

The *'2000 Emergency Response Guidebook. A Guidebook for First Responders During the Initial Phase of a Dangerous Goods/Hazardous Materials Incident'* (ERG2000) was developed jointly by Transport Canada (TC), the US Department of Transportation (DOT) and the Secretariat of Transport and Communications of Mexico (SCT) for use of fire fighters, police, and other emergency services personnel who may be the first to arrive at the scene of a transportation incident involving hazardous materials. It is primarily a guide to aid first responders in quickly identifying the specific or generic hazards of the material(s) involved in the incident, and protecting themselves and the general public during the initial response phase of the incident.

The guidebook is included in this Plan as Appendix A and intends to be used by first responders in the case of an accident involving hazardous materials in the period following the arrival at the scene of an accident during which the presence and/or identification of dangerous goods is confirmed. Protective actions and area securement are initiated, and assistance of qualified personnel is requested.

The guide provides information for the identification of hazardous substances by using the 4 ID number of the substance in the placard. It provides information about safety recommendations (potential hazards, public safety and emergency response) depending on the class, division and the particular substance involved. It also recommends safe distances depending on the hazardous material involved.

The knowledge and use of this guidebook in this Plan is essential for all first responders in the case of a hazardous materials accident.

The ERG can be accessed in the following website posted by CANUTEC:

[http://www.tc.gc.ca/canutec/erg\\_gmu/erg2000\\_menu.htm](http://www.tc.gc.ca/canutec/erg_gmu/erg2000_menu.htm)

The importance of the ERG is that it is a product that is compatible with International Regulations and is supported by the Legislation in the three countries involved.

More information on US regulations (Title 49 CFR) from the Department of Transportation (DOT) and extensive information about Haz-Mat issues can be found in:

<http://hazmat.dot.gov/>

The Mexican Federal Law and Regulations on the Transportation of Hazardous Materials can be found in:

<http://cronos.cta.com.mx/cgi-bin/normasa.sh/cgis/busqnort.p>

Canada's Transportation of Dangerous Goods Act can be found in:

<http://www.tc.gc.ca/tdg/clear/tofc.htm>

Although a photocopy of the Guidebook is attached to this Plan in Appendix 1, each member of the Haz-Mat Incident Action Sub-Committee involved in preparedness and response to Haz-Mat incidents should have copies (handbooks) of the ERG at hand for the case an incident occurs. They can be requested/purchased to the DOT or to the CHEMTREC in the USA or to TC/CANUTEC in Canada.

## **5.- Hazard Classification System.**

The hazard class of dangerous goods is indicated either by its class (or division) number or name. For a placard corresponding to the primary hazard class of a material, the hazard class or division number must be displayed in the lower corner of the placard. The hazard class or division number must appear on the shipping document after each shipping name.

### **Class 1 – Explosives**

- Division 1.1 Explosives with a mass explosion hazard
- Division 1.2 Explosives with a projection hazard
- Division 1.3 Explosives with predominantly a fire hazard
- Division 1.4 Explosives with no significant blast hazard
- Division 1.5 Very insensitive explosives; blasting agents
- Division 1.6 Extremely insensitive detonating articles

### **Class 2 – Compressed Gases**

- Division 2.1 Flammable gases
- Division 2.2 Non-flammable, non-toxic\* compressed gases
- Division 2.3 Gases toxic\* by inhalation
- Division 2.4 Corrosive gases (Canada)

### **Class 3 - Flammable liquids (and Combustible liquids [U.S.])**

### **Class 4 - Flammable solids**

- Division 4.1 Flammable solids
- Division 4.2 Spontaneously combustible materials
- Division 4.3 Dangerous when wet materials

### **Class 5 - Oxidizers and Organic peroxides**

- Division 5.1 Oxidizers
- Division 5.2 Organic peroxides

## **Class 6 - Poisonous\* materials and Infectious substances**

Division 6.1 Poisonous\* materials

Division 6.2 Infectious substances

## **Class 7 - Radioactive materials**

## **Class 8 - Corrosive materials**

## **Class 9 - Miscellaneous dangerous goods**

Division 9.1 Miscellaneous dangerous goods (Canada)

Division 9.2 Environmentally hazardous substances (Canada)

Division 9.3 Dangerous wastes (Canada)

\* The words “poison” or “poisonous” are synonymous with the word “toxic”.

## **6.- UN Hazardous Material Numbers**

UN numbers or UN IDs are four-digit numbers that identify hazardous substances and products (such as explosives and poisonous materials) of commercial importance. This numbering scheme is widely used in international commerce, for instance to label the contents of shipping containers.

Some chemical compounds have their own UN numbers (e.g. acrylamide has UN 2074), while sometimes groups of chemicals or products with similar properties receive a common UN number (e.g. cigarette lighters with flammable gas have UN 1057). A chemical in its solid state may receive a different UN number than the liquid phase if their hazardous properties differ significantly; substances with different levels of purity may also receive different UN numbers.

UN numbers range from UN 1001 to about UN 3500 and are assigned by the United Nations Committee of Experts on the Transport of Dangerous Goods. They are published as part of their *Recommendations on the Transport of Dangerous Goods*, also known as the *Orange Book*. These recommendations are typically adopted by the member states.

NA numbers (North America), also known as DOT numbers are issued by the United States Department of Transportation and are identical to UN numbers, except that some substances without a UN number may have an NA number. These additional NA numbers use the range NA 8000 – NA 9999.

Associated with each UN number is a hazard identifier, which encodes the general hazard class and subdivision (and, in the case of explosives, their compatibility group). For instance, the hazard identifier of acrylamide is 6.1 and the one of cigarette lighters is 2.1. If a substance poses several dangers, then subsidiary risk identifiers may be specified. It is not possible to

deduce the hazard class(es) of a substance from its UN number: they have to be looked up in a table.

### **7.- Placards.**

Placards are diamond shaped signs that are required to be affixed on each side and end of vehicles carrying hazardous materials. Placarding requirements are very specific. Placards indicate primary hazard, the most dangerous property associated with the material being transported. Placarding in the US, Canada and Mexico, compatible with International regulations are shown in the ERG2000. Materials, size and other characteristics are clearly defined in the legislation and will not be dealt with here in this plan. Only colours, symbols and UN numbers in, and of, the placard will be presented. The amount and type of hazardous material transported that require to be placarded is defined by the legislation.

There is a specific colour for each hazard Class and specific numbers and symbols for each hazard division and there is a specific number for each hazardous materials.

The background colour of placards according to the hazard is as follows:

**Table. 7.1.- Placard colours and Hazard Classes.**

| <b>Placard Background Colour</b> | <b>Hazard</b>                     | <b>Hazard Class and Division</b> |
|----------------------------------|-----------------------------------|----------------------------------|
| Orange                           | Explosive                         | 1.1. 1.2. 1.3. 1.4. 1.5. 1.6     |
| Red                              | Flammable/Combustible             | 2.1 and 3                        |
| Green                            | Compressed non-Flammable Gases    | 2.2.                             |
| White                            | Poisonous Material                | 2.3. 6.1. 6.2.                   |
| White with Vertical Red Stripes  | Flammable Solid                   | 4.1.                             |
| White over Red                   | Spontaneously Combustible         | 4.2.                             |
| Blue                             | Dangerous When Wet.               | 4.3                              |
| Yellow                           | Oxidizer, Organic Peroxides.      | 5.1. 5.2.                        |
| Yellow over white                | Radioactive                       | 7                                |
| White over Black                 | Corrosive                         | 8                                |
| Black Stripes Over White         | Miscellaneous Hazardous Materials | 9                                |

Colours and symbols can be seen in next section (Hazard Classes) when each Hazard Class and Divisions are described. Some placards with (in the US) and without the name of the class are presented; placards with the white space in the middle to write the UN ID number are shown too; in all cases, placards with the number of the hazard class are shown.

## **8.- Hazard Classes.**

### **8.1.- Class 1 Explosives.**

#### Class 1- Definitions

a) Explosive. An explosive means any substance or article, including a device, which is designed to function by explosion (i.e., an extremely rapid release of gas and heat) or which, by chemical reaction within itself, is able to function in a similar manner even if not designed to function by explosion, unless the substance or article is otherwise classed under the provision of this section.

b) Explosives in Class 1 are divided into six divisions as follows:

(1) Division 1.1 consists of explosives that have a mass explosion hazard. A mass explosion is one that affects almost the entire load instantaneously.



(2) Division 1.2 consists of explosives that have a projection hazard but not a mass explosion hazard.



(3) Division 1.3 consists of explosives that have a fire hazard and either a minor blast hazard or a minor projection hazard or both, but not a mass explosion hazard.



(4) Division 1.4 consists of explosives that present a minor explosion hazard. The explosive effects are largely confined to the package and no projection of fragments of

appreciable size or range is to be expected. An external fire must not cause virtually instantaneous explosion of almost the entire contents of the package



(5) Division 1.5 consists of very insensitive explosives. This division is comprised of substances that have a mass explosion hazard but are so insensitive that there is very little probability of initiation or of transition from burning to detonation under normal conditions of transport.



(6) Division 1.6 consists of extremely insensitive articles that do not have a mass explosive hazard. This division is comprised of articles which contain only extremely insensitive detonating substances and which demonstrate a negligible probability of accidental initiation or propagation.



## 8.2.- Class 2. Compressed Gases.

Divisions 2.1, 2.2, and 2.3-Definitions.

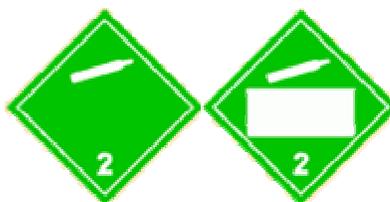
a) Division 2.1 (Flammable gas). A flammable gas (Division 2.1) means any material which is a gas at 20°C (68°F) or less and 101.3 kPa (14.7 psia) of pressure (a material which has a boiling point of 20°C (68°F) or less at 101.3 kPa (14.7 psia)) which-

- (1) Is ignitable at 101.3 kPa (14.7 psia) when in a mixture of 13 percent or less by volume with air; or
- (2) Has a flammable range at 101.3 kPa (14.7 psia) with air of at least 12 percent regardless of the lower limit.



(b) Division 2.2 (non-flammable, non-poisonous compressed gas-including compressed gas, liquefied gas, pressurized cryogenic gas, compressed gas in solution, asphyxiant gas and oxidizing gas). A non-flammable, non-poisonous compressed gas (Division 2.2) means any material (or mixture) which-

- (1) Exerts in the packaging an absolute pressure of 280 kPa (40.6 psia) or greater at 20 °C (68 °F), and
- (2) Does not meet the definition of Division 2.1 or 2.3



(c) Division 2.3 (Gas poisonous by inhalation). A gas poisonous by inhalation (Division 2.3) means a material which is a gas at 20°C (68°F) or less and a pressure of 101.3 kPa (14.7 psia) (a material which has a boiling point of 20°C (68°F) or less at 101.3 kPa (14.7 psia)) and which-

- (1) Is known to be so toxic to humans as to pose a hazard to health during transportation, or
- (2) In the absence of adequate data on human toxicity, is presumed to be toxic to humans because when tested on laboratory animals it has an LC50 value of not more than 5000 mL/m<sup>3</sup> (ppm).



### 8.3.- Class 3-Flammable Liquids.

Definitions.

- (a) Flammable liquid. A flammable liquid (Class 3) means a liquid having a flash point of not more than 60.5°C (141°F), or any material in a liquid phase with a flash point at or above 38°C (100°F) that is intentionally heated and offered for transportation or transported at or above its flash point in a bulk packaging.



(b) Combustible liquid.

(1) A combustible liquid means any liquid that does not meet the definition of any other hazard class and has a flash point above 60.5°C (141°F) and below 93 °C (200 °F).

(2) A flammable liquid with a flash point at or above 38°C (100°F) that does not meet the definition of any other hazard class may be reclassified as a combustible liquid.

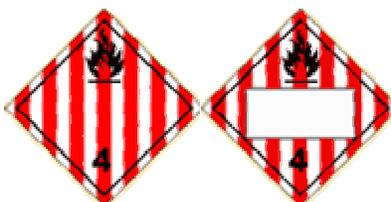


#### 8.4.- Class 4. Flammable Solids.

Divisions 4.1, 4.2 and 4.3. Definitions.

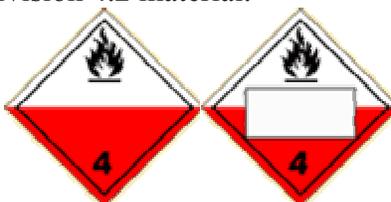
(a) Division 4.1 (Flammable Solid). A flammable solid (Division 4.1) means any of the following three types of materials:

- (1) Desensitised explosives that when dry are Explosives of Class 1 other than those of compatibility group A, which are wetted with sufficient water, alcohol, or plasticizer to suppress explosive properties; and
- (2) Self-reactive materials are materials that are thermally unstable and that can undergo a strongly exothermic decomposition even without participation of oxygen (air).
- (3) Readily combustible solids are materials that-
  - (i) Are solids which may cause a fire through friction, such as matches;
  - (ii) Show a burning rate faster than 2.2 mm (0.087 inches) per second when tested in accordance with UN Manual of Tests and Criteria; or
  - (iii) Any metal powders that can be ignited and react over the whole length of a sample in 10 minutes or less, when tested in accordance with UN Manual of Tests and Criteria.



(b) Division 4.2 (Spontaneously Combustible Material). Spontaneously combustible material (Division 4.2) means-

- (1) A pyrophoric material. A pyrophoric material is a liquid or solid that, even in small quantities and without an external ignition source, can ignite within five (5) minutes after coming in contact with air when tested according to the UN Manual of Tests and Criteria.
- (2) A self-heating material. A self-heating material is a material that, when in contact with air and without an energy supply, is liable to self-heat. A material of this type which exhibits spontaneous ignition or if the temperature of the sample exceeds 200 °C (392 °F) during the 24-hour test period when tested in accordance with UN Manual of Tests and Criteria, is classed as a Division 4.2 material.



(c) Division 4.3 (Dangerous when wet material). For the purposes of this chapter, dangerous when wet material (Division 4.3) means a material that, by contact with water, is liable to become spontaneously flammable or to give off flammable or toxic gas at a rate greater than 1 L per kilogram of the material, per hour, when tested in accordance with UN Manual of Tests and Criteria.

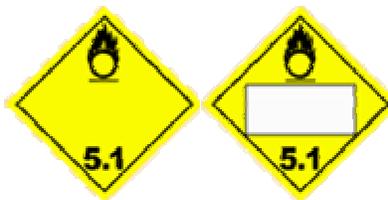


### 8.5.- Class 5. Oxidizers and Organic Peroxides.

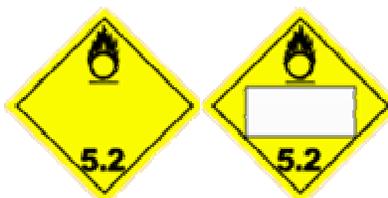
Divisions 5.1 and 5.2. Definitions.

Division 5.1 – Oxidizers. Oxidizer (Division 5.1) means a material that may, generally by yielding oxygen, cause or enhance the combustion of other materials.

- (1) A solid material is classed as a Division 5.1 material if, when tested in accordance with the UN Manual of Tests and Criteria, its mean burning time is less than or equal to the burning time of a 3:7 potassium bromate/cellulose mixture.
- (2) A liquid material is classed as a Division 5.1 material if, when tested in accordance with the UN Manual of Tests and Criteria, it spontaneously ignites or its mean time for a pressure rise from 690 kPa to 2070 kPa gauge is less than the time of a 1:1 nitric acid (65 percent)/cellulose mixture.



Division 5.2- Organic Peroxides. Organic peroxide (Division 5.2) means any organic compound containing oxygen (O) in the bivalent -O-O- structure and which may be considered a derivative of hydrogen peroxide, where one or more of the hydrogen atoms have been replaced by organic.



### 8.6.- Class 6. Poisons Materials and Infectious Substances.

Division 6.1-Poisonous Materials. Definitions.

(a) For the purpose of this subchapter, poisonous material (Division 6.1) means a material, other than a gas, which is known to be so toxic to humans as to afford a hazard to health during transportation, or which, in the absence of adequate data on human toxicity:

(1) Is presumed to be toxic to humans because it falls within any one of the following categories when tested on laboratory animals (whenever possible, animal test data that has been reported in the chemical literature should be used):

(i) Oral Toxicity. A liquid with an LD<sub>50</sub> for acute oral toxicity of not more than 500 mg/kg or a solid with an LD<sub>50</sub> for acute oral toxicity of not more than 200 mg/kg.

(ii) Dermal Toxicity. A material with an LD<sub>50</sub> for acute dermal toxicity of not more than 1000 mg/kg.

(iii) Inhalation Toxicity.

(A) A dust or mist with an LC<sub>50</sub> for acute toxicity on inhalation of not more than 10 mg/L; or

(B) A material with a saturated vapour concentration in air at 20 °C (68 °F) greater than or equal to one-fifth of the LC<sub>50</sub> for acute toxicity on inhalation of vapours and with an LC<sub>50</sub> for acute toxicity on inhalation of vapours of not more than 5000 mL/m<sup>3</sup> (ppm); or

(2) Is an irritating material, with properties similar to tear gas, which causes extreme irritation, especially in confined spaces.



Class 6, Division 6.2 – Infectious Substance. Infectious substance means a material known to contain or suspected of containing a pathogen. A pathogen is a virus or micro-organism (including its viruses, plasmids, or other genetic elements, if any) or a proteinaceous infectious particle (prion) that has the potential to cause disease in humans or animals.



### **8.7.- Class 7 Radioactive Materials.**

Class 7. Definitions. Radioactive material means any material having a specific activity greater than 70 Bq per gram (0.002 microcurie per gram)

Specific activity of a radionuclide means the activity of the radionuclide per unit mass of that nuclide. The specific activity of a material in which the radionuclide is essentially uniformly distributed is the activity per unit mass of the material.

Radioactive contents means a Class 7 (radioactive) material, together with any contaminated liquids or gases within the package.

Radioactive instrument or article means any manufactured instrument or article such as an instrument, clock, electronic tube or apparatus, or similar instrument or article having Class 7 (radioactive) material in gaseous or non-dispersible solid form as a component part.



### **8.8.- Class 8- Corrosive Materials. Definitions.**

(a) A "corrosive material" (Class 8) means a liquid or solid that causes full thickness destruction of human skin at the site of contact within a specified period of time. A liquid that has a severe

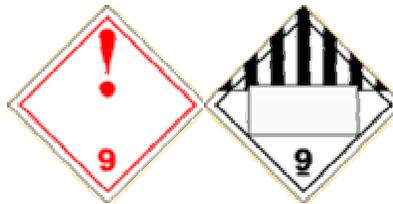
corrosion rate on steel or aluminum surfaces exceeding 6.25 mm (0.25 inch) a year at a test temperature of 55°C (130°F).



### 8.9.- Class 9. Miscellaneous Hazardous Materials.

Definitions. Miscellaneous hazardous material (Class 9) means a material which presents a hazard during transportation but which does not meet the definition of any other hazard class. This class includes:

- (a) Any material which has an anesthetic, noxious or other similar property which could cause extreme annoyance or discomfort to a flight crew member so as to prevent the correct performance of assigned duties; or
- (b) Any material that meets the definitions for an elevated temperature material, a hazardous substance, a hazardous waste, or a marine pollutant.



### 8.10.- Other Regulated Materials (ORM)-Definitions.

For the purpose of this subchapter, "ORM-D material" means a material such as a consumer commodity, which, although otherwise subject to the regulations of this subchapter, presents a limited hazard during transportation due to its form, quantity and packaging.

### 9.- Shipping Papers.

According to International and National Regulations, those carriers transporting (highway, railroad, air, sea) hazardous materials must have shipping papers that provide information about the contents of the shipment. First responders should look for the following information on the shipping papers:

- Shipper Contact Information
- Consignee Contact Information
- Proper shipping name of the hazardous material, hazard class and division, UN number.

- Total Quantity or reportable quantity indicating that a hazardous material is being shipped in an amount exceeding a specifically regulated level.
- Packing group I, II or III-based on the degree of danger presented by the material (I greater, II medium, III minor danger).
- Poison or inhalation hazard notation.
- Inhalation hazard zone.
  - A-LC50= 0-200 ppm
  - B-LC50= 200-1000 ppm
  - C-LC50=1000-3000 ppm
  - D-LC50= 3000-5000 ppm
- Other notations such as corrosive, explosive, etc.
- Description of the type of hazard such as marine pollutant or subsidiary hazard.
- Emergency Response Telephone Number.

According to the mode of transportation, shipping papers should be located as follows:

**Table 9.1. Mode of transportation and shipping papers.**

| Mode of Transportation | Title of Shipping Paper                                       | Location of Shipping Paper                                                       | Responsible Person |
|------------------------|---------------------------------------------------------------|----------------------------------------------------------------------------------|--------------------|
| Highway                | Bill of Lading or Freight Bill                                | Cab of vehicle within the reach of the driver                                    | Driver             |
| Rail                   | Waybill and/or Consists                                       | Member of Train Crew (conductor or engineer) Shipper                             | Conductor          |
| Water                  | Dangerous Cargo Manifest                                      | Wheelhouse or pipe-like container on barge                                       | Captain or Master  |
| Air                    | Air Bill with Shipper's Certification for Restricted Articles | Cockpit (may also be outside of packages or attached to the outside of packages) | Pilot              |

### **10.- Material Safety Data Sheets.**

A Material Safety Data Sheet (MSDS) is designed to provide both workers and emergency personnel with the proper procedures for handling or working with a particular substance.

MSDS's are meant for:

- Employees who may be occupationally exposed to a hazard at work
- Employers who need to know the proper methods for storage

- Emergency Responders such as fire fighters, hazardous materials crews, emergency medical technicians and emergency room personnel.

MSDS's include information such as:

- Product identification
- Components and contaminants
- Personal Protection Information
- Handling and storage Precautions
- Reactivity Data
- Health Hazard Data and First Aid.
- Physical Data
  - Boiling point
  - Specific gravity
  - Vapour pressure
  - Etc.
- Fire, Explosion and Reactivity Data
- Spill, Leak and Disposal Procedures
- DOT, UN, other transportation Information:
  - Name of substance
  - Hazard Class
  - UN Number
  - Packing Group
  - Marking
  - Labelling
  - Placard
  - Hazardous Substance/RQ
  - Shipping Description
  - Packaging References
- Protection Required for Work on Contaminated Equipment.
- Additional Classification

Emergency responders, then, can get important information about the substance in an incident from the MSDS.

### **11.- Protective Clothing and Equipment.**

Protective clothing and equipment can be grouped in four levels as follows:

Level A. Fully encapsulated gas tight chemical suit, chemical-resistant outer and inner gloves, chemical-resistant boots and self-contained breathing apparatus (SCBA).

Level B. Non-encapsulating chemical suit, chemical-resistant outer and inner gloves, chemical-resistant outer boots and self contained breathing apparatus.

Level C. Non-encapsulating chemical suit, chemical-resistant outer and inner gloves, chemical-resistant outer boots and air-purifying respirator.

Level D. Coveralls and chemical resistant boots.

The choice of the protective clothing and equipment depends on the type of hazardous material involved.

After an event, clothing and equipment in contact with hazardous materials must be cleaned and/or decontaminated.

## **12.- Training.**

Training for the response in the case of an incident involving hazardous materials is very important for emergency responders in order to give the adequate response and protect the population and themselves. All personnel in contact with hazardous materials (shipper/consignee/ employees) should be trained in their handling and in the response in the case of an accident.

During September 2003, the Government of Saint Lucia trained first responders from several governmental agencies through the International Association of Fire Fighters' 'Hazardous Materials Training Course for First Responders' delivered by Lt. Wayne Watts of the Jacksonville Fire and Rescue Department and a volunteer from FAVA/CA (The Florida Association of Voluntary Agencies for Caribbean Action) a non-profit organisation formed in 1981.

The Haz-Mat Plan, then, was written taking into consideration compatibility of theoretical and practical preparedness and response concepts with those from the training course to ensure that the plan will be easily understood and implemented by the trainees.

## **PART III. EMERGENCY RESPONSE.**

### **13.- Incident Scenarios.**

The response to a Haz-Mat incident depends on the type of substance, its amount and its characteristics defined by the hazard class the substance belongs to. Therefore, the first thing for a responder to know is the possible incident scenario(s) that are likely to happen due to the substance involved.

Incidents can occur in any phase of the Haz-Mat management: packaging, storing, importation, transportation, use, reuse, production, and/or disposal of hazardous substances. In any case the response should be given to the particular conditions set by the substance involved and the incident itself.

### **14.- Hazmat Accidents General Scenarios and Response.**

The following general scenarios and recommended response are taken from the 'Emergency Handling of Hazardous Materials in Surface Transportation' published by the American Association of Railroads and the Bureau of Explosives of the USA (See bibliography).

#### **14.1.- Class 1. Explosives.**



If an accident involving these materials results in an explosion the only thing that can be done is to care for the injured and extinguish any fires if safe to do so.

If fire is present. If a fire has started near a class 1 (explosive materials) efforts should be made to extinguish the fire or remove the class 1 (explosive material) to a safe place. Some Class 1 (explosive materials) detonate immediately on ignition, others burn for some time before exploding and others may be completely consumed without exploding. Burning Class 1 (explosive materials) must be presumed to detonate easily. Efforts to extinguish them are not recommended. Applying water to burning Class 1 (explosive) materials may cause an explosion as a result from the steam that is generated.

If fire is not present. If accident does not cause immediate ignition or detonation of the Class 1 (explosive) material, the first and most important step is to prevent a fire. Area should be guarded and to keep all persons away. Because of the potential hazard, it cannot be emphasized strongly enough that access to the accident site should be limited to only those experts necessary

to make an initial assessment. All other response personnel should remain beyond recommended evacuation distances.

Before beginning to clear a wreck containing class 1 (explosive) materials, remove all unbroken packages to a place of safety and gather any remaining explosive material rendered inert. Many Class 1 (explosive) materials are readily set off by a direct blow or by a spark produced when two pieces of metal or a piece of metal and stone come together.

In clearing a wreck, care must be taken not to cause a spark with metal tools. With most Class 1 (explosive) materials, a thorough wetting with water usually removes the danger of explosion from spark or impact. Various kinds of dynamite, however, are not effected by wetting and may still detonate from impact.

After clearing a wreck involving initiating explosives such as fulminants or azides, the ground should be kept wet until expert decontamination help has arrived and proper cleanup procedures are carried out.

If the wreck involves a vehicle containing chemical ammunition, every precaution must be taken to prevent fire and casualties due to gas leakage. Only those persons necessary to clear the wreckage should be allowed in the vicinity, and they should wear appropriate chemical protective equipment.

Propellant explosives shipped in packages and vehicles may be in the form of very fine grains or extremely large solid pieces weighing several tons. Care must be exercised when handling broken or damaged packages. Every precaution must be taken to keep Class 1 (explosive) materials away from sparks or flames since many of these explosives will burn rapidly or explode when ignited. Care must be exercised to avoid inhalation of smoke since combustion of some Class 1 (explosive) materials is toxic.

Great care must be taken when handling packages of Class 1 (explosive) materials to prevent shocks or falls that may injure containers. Shoes of people handling packages must be as free from grit as possible. All precautions to prevent fire must be taken.

A broken box of Class 1 (explosive) material that cannot be repackaged should be held until arrival of a competent person who can supervise the removal of the material.

Since particles of explosive composition from damaged containers may be strewn on vehicle floors or other freight, care should be exercised to avoid friction or sparks from shoes, tools, or other sources. Vehicle floors should be thoroughly swept and washed with a plentiful supply of water. The wash water should be contained for proper disposal.

Packages of leaking liquid Class 1 (explosive) material must be disposed of carefully. Leaking packages must be:

- Packed in outer boxes large enough to permit enclosure;
- Surrounded by at least 2 inches of dry, fine sawdust or dry and clean cotton waste;

- And stored in a safe place until arrival of competent person to supervise removal of the materials.

Vehicles carrying Class 1 (explosive) materials that have received rough treatment must be inspected to ensure packages containing Class 1 (explosive) materials are properly loaded, secured and in good condition. Leaking or broken packages must be carefully removed to a safe place. Loose powder or other explosives must be swept up and carefully removed. If the floor is wet with nitro-glycerine, the shipper should be contacted.

## 14.2.- Class 2. Flammable Gases.

### Division 1 Flammable Gases.



General. Division 2.1. materials (Flammable gases) are often ignited immediately after a breach of their container. If not, vapours will often flow until an ignition source – such as a highway flare, fusee, or hot exhaust manifold- is reached. If this happens. The entire gas cloud can catch fire at once. A gas leak that has ignited should NOT be extinguished until the leak is stopped. Attempts to stop leaks should only be made if safe to do so and under streams of water to keep the metal cool. Let the gas burn if valves cannot be closed. Tanks in intense fires or exposed to flame impingement, especially “torch like” flame impingement, may rupture violently, producing a large fireball (up to 1200 feet in diameter), and can hurl large metal fragments a half a mile or further in any direction. This is particularly true for tank car ends that may rocket with tremendous force in the direction that the ends are pointed.

If on fire. If a Division 2.1. material (flammable gas) is burning at the safety relief valve, manway corner product valves, or a hole in the tank, and flames are not impinging on the tank itself or another car, there is relatively little risk of violent explosion. Allowing the car to burn itself out has proven a safe course, even though the flames may burn for an extended time- perhaps several days-. Stay away from fittings (especially safety relief valves) in case of operation or failure.

Allowing non-burning vapours to spread, however, may result in a sudden, violent flash fire. Tanks that are punctured and have burned out often have enough vapour left inside to create an explosive mixture in the tank. Tanks should be purged after the fire burns out.

Vapours. Division 2.1. materials (flammable gases) shipped in tank cars are shipped as liquefied gases. This is important to know since these liquefied gases will vaporise under normal conditions and produce 200 to 600 volumes of vapour for each volume of liquid. The flammability range, which varies for each material, is also an important factor. For most gases, the flammability range is between 2 %- 10 %. For a 2 % mixture, one (1) volume of vapour diluted by 50 volumes of air can be flammable.

Flammable vapours released from an opening in a tank car will ignite upon contact with a spark, flame, or other sufficient heat source and burn with great rapidity, violence, and intensity back to the discharge point. After this flashback, the gas will burn above the liquid surface or at the discharge point. If liquid or vapour is released from a tank, all sources of ignition must be kept away from any area where the vapour concentration can reach the Lower Explosive Limit (LEL) levels. Explosimeters, Combustible Gas Meters (CGMs) and other detectors are available to check for dangerous concentrations. If tanks are breached or ruptured in an accident, all people and power equipment should be kept at least one-half (1/2) mile away until the boundary of LEL is known. Continual monitoring of LEL boundaries is required until material discharge is stopped and vapours are known to have dispersed.

Take these steps to avoid igniting vapours.

1. Extinguish all fires, smoking materials, and remove all possible ignition sources from the vicinity. When lights are necessary, use only spark-proof electric flashlights. Keep internal combustion engines away from vapour cloud. Do not allow trains to pass on adjoining tracks or vehicles to pass on adjacent roads as long as detector readings indicate that an explosion or fire risk exists.
2. Post guards and keep all spectators at least one half (1/2) mile away.
3. Dig holes and trenches, or build sand or earthen dikes in the path of the flowing liquid surface area from which vapours can be given off. Care must be taken to avoid striking rocks or metal that can produce sparks that may ignite the vapour. Flammable gas vapours are usually heavier than air and tend to form a layer on the ground. These vapours will flow along the slope of the ground and settle in low places and areas sheltered from wind. Vapours will not drift or flow against wind but may travel a considerable distance with wind. Dispersion of vapours will depend on wind speed and direction. Vapour dispersion may be aided by using streams of water to knock-down vapour at point of leakage from the car. Water fog will tend to disperse vapours still in the air.
4. Prevent flammable gases from entering sewer systems. Vapours trapped in sewers may travel and ignite at some point far distant from the leak. Do not permit liquid to drain into water sources. Contaminated water may cause environmental harm.
5. Locate all leaks and stop them if safe to do so.
6. Wrecking operations or transferring the contents of flammable gas tank cars should not be attempted until all vapours in the vicinity have dispersed and should only be attempted by trained personnel. Cutting torches must not be used on tank car tanks, either loaded or empty unless tank cars are purged.
7. If leaks are expected during the handling of wrecked cars or other vehicles, transfer contents to another car or container. Transfer of flammable gases should only be performed by personnel trained and experienced in the necessary techniques.

Division 2.2. (non-flammable gases).



General. Class 2 (non-flammable gases) are materials that do not readily burn and, inside their container, have either an absolute pressure exceeding 40 psi at 70 degrees F. These materials are shipped in bulk in a liquefied state. Smaller containers may contain liquid or gas. This liquid will vaporise when exposed to atmospheric pressure.

The Division 2.2. material (non-flammable gas) most commonly transported in bulk is anhydrous ammonia. This commodity can be deadly. The shipper should be called immediately to assist in handling accidents involving this commodity. Anhydrous ammonia does not meet the strict DOT definition of a flammable gas but may burn if (1) a vapour stream blows directly over a flame, (2) if vapours are in a confined space or (3) if vapours are exposed to a high temperature fire. Other non-flammable gases may not necessary be toxic but can cause death by displacing the oxygen in the area around the leak.

If fire is present. If wreckage is on fire, heat from the fire will tend to vapourise any leakage and may carry fumes skyward. If a car or container is not leaking, every effort should be made to extinguish nearby fires.

Vehicles authorised for transportation of Division 2.2. (non-flammable gases) may or may not be insulated. They are equipped with safety valves designed to prevent build-up of excess internal pressure. In order to function properly, safety valves must not be buried or otherwise obstructed. If safety valves are obstructed try to move the tank car into a position that will allow the valves to function properly. Stay clear of the area around the safety valve. If the safety valve functions, material may be projected several feet. Obtain expert advice before attempting to move any damaged tank car.

Gas cylinders, with few exceptions are provided with safety devices to prevent rupture in case they are exposed to fire. All persons should be kept at least one-third (1/3) mile away if cylinder is exposed to flame or heat impingement. If the cylinder bursts, pieces can be thrown several hundred yards.

If fire is not present. If there is leakage of liquid from any container of non-flammable gas, avoid contact with the liquid since it may cause destruction of skin tissues by freezing. Water spray can be used to knock down vapours; however, water applied directly to the spilled liquid will increase the vaporisation rate of the material. Runoff water may have to be diked, collected and neutralised to prevent further danger to persons, property and the environment.

Because of the noxious and irritating nature of most of these gases, all persons in the vicinity of a leak should be kept upwind. All persons in the path of irritating or noxious fumes should be

moved to a safe location. If possible, the leaking car or container should be moved to a location where escaping gas will be carried away from occupied buildings or other locations by wind.

It is difficult to stop compressed gas leaks except when gas escapes through an open valve. A leaking cylinder should be moved to an isolated area if safe to do so. Cylinders of compressed gases that are not leaking should be removed from the wreck. Avoid opening or breaking off any valves or striking the cylinders.

Division 2.3. (poisonous gas).



General. Inhalation or contact with Division 2.3 (poison gas) materials can be fatal and must be avoided. Leaks of Division 2.3. (poison gas) materials are often difficult to detect since many of these materials are colourless and odourless. Use extreme care when handling any container of Division 2.3. (poison gas). Shipper or nearest manufacturer of the material should be called for assistance in any incident involving Division 2.3. (poison gas) materials.

If fire is present. Because they are not equipped with safety devices, cylinders or ton containers may rupture violently or rocket when exposed to a fire or prolonged intense heat, If fire cannot be immediately controlled, evacuate area to protect persons from container fragments and fumes, should a rupture occur. If containers are not leaking but are endangered by fire, every effort should be made to extinguish nearby fire or to remove containers from fire area.

In clearing wreck involving these tanks, cutting torches should be used with extreme caution and only by persons well trained in their use and familiar with the dangers involved.

If fire is not present. If liquid or gas from a tank or cylinder containing Division 2.3. (poison gas) material, keep all persons out of any area where vapours may accumulate. Detectors for the presence of these vapours or fumes are available, but are often so material specific that they may not be readily available. Personnel in the area should be limited to those absolutely essential to make a survey of the situation. Obtain assistance from shipper or consignee immediately.

Personnel should not enter contaminate area without positive pressure SCBA and appropriate chemical protective clothing. Cooling tanks with water streams may be effective in reducing internal tank pressure and leakage rate. If it is possible to roll the tank so that the point of leakage is at the top, the hazard may be reduced considerably.

Any person affected by the material should be removed from contaminated area. Call a physician or the health authorities immediately and tell them the name of the poison to which the victim was exposed. Remove any clothing saturated with gas to prevent skin irritation and burns. Persons removing the clothing must take care not to become contaminated with the material. Keep patient warm and quiet. If breathing has ceased start resuscitation immediately, but

remember that mouth-to-mouth artificial respiration may expose rescuer to fumes inhaled by victim.

### 14.3.- Class 3. Flammable liquids.



#### Flammable and Combustible Liquids

General. Class 3 materials (flammable liquids) have a flash point of not more than 141 degrees F (60.5 degrees C). The flash point of a liquid is the temperature at which that liquid gives off enough vapour to form an ignitable mixture with air when exposed to an external ignition source. At this temperature there are generally insufficient vapours generated to sustain continued combustion. The term flash point is often confused with the autoignition temperature, the minimum temperature at which the vapours from a material will ignite without an external ignition source present.

Combustible liquids are materials that do not meet the definition of other hazard class (except Class 9) and have a flash point between 100 and 200 degrees F (38 to 93 degrees C).

The *relative* hazard of a class 3 material (flammable liquid) may be determined by its packing group. A Class 3 (flammable liquid) material with a packing group of I has a lower flash point than a Class 3 material (flammable liquid) with a packing group of III.

The possibility of ignition is greatest for liquids having low flash points. The lower the flash point, the greater the probability that either the temperature of the liquid or the temperature of the surrounding air will be higher than the flash point of the liquid. The higher these temperatures, the greater the amount of vapour formed and thus the greater the hazard. Quite frequently when leaks occur in an accident, ignition of flammable vapours occurs instantly by friction sparks.

If a vehicle (not a tank or tank truck) involved in an accident is carrying packages of Class 3 materials (flammable liquids) you should assume that the packages are broken and the leakage, which could cause a fire, has occurred. The presence of vapours will generally be indicated by the characteristic odour of the chemical. If safe to do so, any vehicle containing packages of flammable liquids should be opened for ventilation. The vehicle or packages of flammable liquids should be carefully removed to a safe place, away from ignition sources. If leakage is continuous, ventilation will probably not remove the danger. Removal of ignition sources is

imperative for safety of responders. Class 3 materials (flammable liquids) spilled from broken packages should be completely covered with chemically compatible dry absorbent material such as foam, earth, sand or special sorbents.

If on fire. In addition to general emergency response recommendations given earlier, other actions or considerations that may reduce the hazard and aid containing and extinguish the fire are:

1. Pull away other cars or vehicle that are movable and not burning, if safe to do so.
2. Dig holes or build sand or earthen dikes in the path of burning liquid and vapours to limit and contain the fire area and protect other cars and adjacent property.
3. Smother fires around the car or vehicle. Sand dirt, foam, dry chemical and carbon dioxide are good agents. Water from a fog nozzle may smother the fire; however, the liquid may float on water and this may spread the fire or provide a greater surface area for evolution of vapours.

Generally it is a good idea not to extinguish the fire at its source until all spilled material has either been burned or its re-ignition can be prevented.

When vapours are burning at a safety valve or other container opening, do not extinguish the fire unless re-ignition can be prevented. Extinguishing the fire without stopping the leak may allow leakage to spread and reignite, causing a sudden violent flash fire. It is usually safer to let the vapour burn at the valve or point of leakage. The fire should be controlled to protect other transportation vehicles and surrounding property.

4. Watch all tanks in the fire for evidence of bulging or red hot-spots in the metal. Both are indications that the strength of the steel is being reduced by heat to a point where it may not be able to hold the pressure in the tank maintained by safety valves. If these signs are observed, *keep all persons away from the tanks*. If the metal fails or a safety valve functions, a stream of burning liquid or vapour may be projected many feet.
5. If sufficient water is available, use it as a fog spray to cool tanks affected by heat from the fire. Apply water from as far a distance as possible or use unmanned monitor hoses. Remember, runoff water from the fog streams may spread burning liquid and/or cause additional environmental damage.
6. As a general recommendation, do not puncture the tank of a transport vehicle involved in a fire since this will liberate more flammable liquid and extended the fire. (There are circumstances in which it may be determined that a deliberate “holing” of the tank is necessary to reduce the time of exposure or to permit other mitigation actions to take place quickly. This determination and its implementation should only be made by experts.
7. Safety valves on tank cars are designed to limit internal pressure to much less than the bursting pressure of the tank. In order to work properly, they must not be buried or otherwise obstructed. If safety valves are obstructed, try to move the tank car in to a position that will allow the valves to function properly. Stay away from possible projection of the commodity if the safety valve functions. Obtain expert advice before attempting to move any damaged vehicles or containers.

If not on fire. If fire does not occur immediately in a wreck, the hazard from a leak of Class 3 material (flammable liquid) is generally greater than when fire is present. Vapours from a

flammable liquid will spread over a great area, more rapidly, than the liquid. While the liquid will flow down hill, vapours travel downwind and may engulf areas that were 'safe' only moments before. Vapours will ignite upon contact with any spark or flame. Vapours will burn with great rapidity, violence and intense heat back to the liquid surface from which they originated. After such a flash of fire, the vapour will burn above the liquid surface.

If the material is not on fire, the following actions should be taken:

1. Extinguish all sources of ignition in the vicinity. When lights are necessary, use only "spark proof" electric flashlights. Keep internal combustion engines out of the vapour cloud. Use an explosimeter. Combustible Gas Meter (CGM) or other detector to determine the boundary of the Lower Explosive Limit (LEL) of the flammable vapour cloud. Keep people and power equipment at least one half (1/2) mile away until the boundary of LEL is known. Continual monitoring of LEL boundaries is necessary until discharge is stopped and vapours are known to have dispersed.
2. Post guards and keep all spectators at least one-half (1/2) mile away.
3. Dig trenches or build sand or earthen dikes in the path of flowing liquid to contain the material. This limits the amount of surface area from which the vapours can be evolved.
4. Cover liquid with sand, dirt, or other material that will blanket the surface and reduce vaporisation rate. Vapour from gasoline and most other flammable liquids is heavier than air and forms a layer along the ground that mixes with air. This mixing action is increased by wind. Vapours flow along the ground and settle in low places sheltered from wind. Vapours may travel a considerable distance with the wind, but will not flow against it.
5. Vapours can be dispersed by spraying with a water fog. Run off should be checked for flammable concentrations of material. Do not permit liquid to drain into sewers. Vapours from the liquid trapped in sewers may ignite at some point far from the leak and cause injury to property and damage. Contaminated water may cause environmental harm if allowed to mix with surface or ground water.
6. Attempt to close tank valves and stop leaks if possible.
7. Wrecking clearing operations and transferring vehicle contents should not be started until all vapours have dispersed. These projects should be conducted only by wrecking and transferring professionals.
8. Cutting torches must not be used on empty or loaded cars if detector readings indicate that an explosion or fire hazard exists. When cutting torches are deemed safe to use, avoid contact with products or with ground saturated with leaked products. These materials can be ignited and will burn as do Class 3 materials (flammable liquids).
9. Many liquids that are regarded safe under ordinary conditions and transported as combustible or non-regulated materials should be treated as dangerous when handling a wreck. An empty or partially empty tank, with or without placards, may contain a vapour-air mixture that could ignite.
10. Remove least damaged cars if safe to do so. Avoid sudden shocks or jars that might produce sparks or friction. Do not move a damaged tank car that is leaking Class 3 (flammable liquid) material. If a tank with only a small leak must be moved a short distance, it may be possible to attach a bucket under the leak to prevent the spread of a Class 3 (flammable liquid) material.

11. Do not allow train to pass on adjoining tracks, or vehicles to pass on adjoining roads. If explosimeter, Combustible Gas Meter (CGM) or other monitoring devices indicate that an explosion or fire hazard exists.

#### **14.4.- Class 4. Flammable Solids.**

##### Division 4.1. Flammable Solids



General. The most commonly transported Division 4.1. (flammable solid) material is “strike anywhere” matches. Fire in shipments of ‘strike anywhere’ matches is frequently caused by ignition of match heads in one or more inner cartons. If the outer box is not broken open, fire is generally confined to inner cartons. Fire may go out after the match head composition is consumed. If the outside box is not broken and smoke dies away after a few minutes, no further action is necessary. The fire has probably been extinguished from a lack of air. Nothing can be gained by opening the box. If fire has gained headway, burning boxes should be removed or flooded with water. Boxes should not be broken open more than necessary. This will only add more fuel to the fire.

##### Division 4.2. Spontaneously Combustible.



General. There is only one major material classed as Division 4.2. (spontaneously combustible) material shipped in tank cars. This material is phosphorous.

Phosphorous will ignite spontaneously on contact with air at or above 86 degrees F. At temperatures below this it may glow. And below 32 degrees F it can be expected that no reaction with air will occur. It may be explosive when mixed with oxidising materials. If a derailed phosphorous tank car has a ruptured safety disc, the car should be filled with water and the disc replaced. Phosphorous on the outside of a car should be scraped off after it stops after it stops burning and disposed of properly. Scraping may expose unburned phosphorous which may ignite if not kept under a water spray. Phosphorous burns are very painful and may cause serious skin injury; personnel protective clothing is required. Burning phosphorous will produce

corrosive phosphorous pentoxide vapours. Avoid breathing this material; inhaling small amounts may cause serious injury.

Leaking phosphorous car will burn until the spilled material crusts over. In some instances the best course of action is to allow a phosphorous fire to burn without intervention or even to accelerate the burning by injecting air into the fire. When appropriate, fires should be fought with wet dirt or sand. Phosphorous should be contained as near the car as possible. Sand or earthen dikes should be built to contain material and prevent further fires. Spilled phosphorous can be temporary buried under a mud cap until wrecking operations are completed. Residue from burned phosphorous is phosphorous pentoxide, a corrosive material that will dissolve into water to form phosphoric acid, another corrosive material. Final disposal of the car, remaining material and residues will have to be coordinated with appropriate National agencies and the shipper and/or consignee.

Another commonly shipped Division 4.2 (spontaneous combustible) material is charcoal. When charcoal is on fire during transit, water should not be used if it is possible to locate and to safely remove the burning material. This is because wet charcoal is susceptible to spontaneous ignition and the fire cannot be stopped permanently except by flooding material with water. Fires in ground charcoal or in charcoal screenings are best handled by removing burning packages. If this is not possible, water should be used sparingly to extinguish visible fire. Next, remove all charcoal and separate the wet from the dry material. Wet charcoal must be destroyed.

Division 4.3. Dangerous when wet.



General. There is only one major material classed as division 4.3. (dangerous when wet) shipped. This material is sodium/

Sodium is a water reactive flammable solid. DO NOT USE WATER, CARBON DIOXIDE, CARBON TETRACHLORIDE, FOEM, OR ANY OTHER LIQUID FIRE EXTINGUISHING AGENTS INCLUDING HALOGENATED HYDROCARBONS. THEY WILL EITHER CAUSE A FIRE OR WILL REACT VIOLENTLY WITH SODIUM. Sodium is shipped in its solid form in tank cars under a nitrogen blanket. It is shipped in its solid form in smaller quantities in airtight containers either under a nitrogen blanket or immersed in an organic solvent. Sodium reacts violently with water to yield hydrogen gas and sodium oxides. The heat from this reaction may be sufficient to ignite the hydrogen. Sodium oxides may be irritating to the skin, eyes and mucous membranes. The moisture in air may be sufficient to cause a reaction with sodium that can start a fire. If a sodium container leaks, use soda dry ash, dry sand, dry salt, dry lime or other dry inert substance. Whichever extinguishing agent is used, it must be *very dry*. In some instances it may be best to protect the surroundings, and allow the sodium to be consumed by the reaction.

The other major Division 4.3. (dangerous when wet material which travels in bulk is calcium carbide and phosphorous pentasulphide.

#### **14.5.- Class 5. Oxidizers and Organic Peroxides.**

##### Division 5.1 Oxidizers.



General. A few Division 5.1 (oxidizing) materials including nitric acid, mixed acid, perchloric acid and hydrogen peroxide are shipped. Most oxidizers may cause fire on contact with combustible materials.

In accidents involving chlorates, care is necessary to prevent ignition by friction or by contact with acids. When chlorates are mixed with organic matter (even with dust) they can form flammable mixtures. Chlorates in contact with sulphuric acid are liable to cause fire or explosion.

Solid Division 5.1 (oxidizing) materials that are mixed with finely divided combustible material may burn with extreme violence.

It is necessary to transfer the contents of a car of Division 5.1 (oxidizing) materials, only persons familiar with the danger and techniques should perform the task.

If fire is present. For liquid Division 5.1. (oxidizing) materials, water should be used in sufficient quantity to extinguish fire, dilute and wash away the liquid. Runoff water may be hazardous. Contaminated water should be contained for disposal. Whenever water contacts acids, splattering and slight explosions will occur. Water should be applied to the fire from a safe distance. A good safe distance in this case is the maximum distance the water from the hose streams can be applied effectively. Reddish fumes caused by fires of nitric acid or mixed acids may be toxic and are irritating to skin, eyes and mucous membranes. Do not expose personnel to these fumes unless they are equipped with positive pressure SCBA and appropriate chemical protective clothing.

When solid Division 5.1. (oxidizing) materials, such as sodium nitrate and other nitrates that ordinarily will not burn, are mixed with organic material, they may burn vigorously if ignited. The heat of burning melts the nitrate that will then ignite any combustible material it touches. Melted nitrate holds a great deal of heat and if water is thrown on it, the sudden generation of a steam will cause the melted nitrate to spatter and may start a fresh fire. When practical, smother

nitrate fires with earth or sand. Water should only be used when fire is small. Using water on large fires of solid Division 5.1 (oxidizing) material is seldom effective.

If fire is not present. Position personnel upwind from spill or leak. Since these materials can react with combustible materials (such as leaves and twigs) to cause fires, digging holes or building earthen dikes may not be effective. Containing material in an area cleared of combustible material may reduce the hazard.

#### Division 5.2. Organic Peroxides.



General. Division 5.2. (organic peroxides) materials are either liquids or solids that readily decompose to release oxygen and heat. They support the burning of combustible materials. Under prolonged exposure to fire or heat, containers of these materials may explode.

Liquid Division 5.2. (organic peroxides) materials often take some effort to ignite, but once ignited, burn with increasing rapidity as the fire progresses. If spilled on combustible materials, spontaneous ignition may occur. Contamination of organic peroxides with a variety of chemical substances can cause a violent chemical reaction. Chemical compatibility of all materials used to contain organic peroxides must be considered.

Solid Division 5.2 (organic peroxides) materials are more readily ignited and burn with increasing rapidity as fire progresses. Explosive mixtures may form if mixed with finely divided combustible materials. Some Division 5.2. (organic peroxides) materials are shipped refrigerated. If refrigeration fails, the material may decompose releasing sufficient heat to start a fire. The driver of a vehicle containing refrigerated Division 5.2. (organic peroxides) materials must be well trained in the properties and handling of the material and must have additional information on material in the shipment.

### **14.6.- Class 6. Poisonous Materials and Infectious Substances.**

#### Division 6.1. Poisonous Materials.



General. These materials are liquids and solids, including pastes and semi-solids, other than a Division 2.3. (poison gas) material. They are toxic to humans through ingestion (eating),

inhalation or absorption through skin. Vapours of some Division 6.1 (poisonous) materials can be dangerous, but to a lesser degree than Division 2.3 (poison gas) materials. Long-term exposure to low concentrations or short-term exposure to high concentrations of these materials may result in adverse health effects. Some Division 6.1 (poisonous) materials are combustible. Expert advice from the shipper should be obtained as soon as possible.

If Division 6.1 (poisonous) materials come in contact with the body, immediately wash affected areas with water, or soap and water. If material can be washed quickly, injury may be prevented. Persons affected by vapours should be removed from the area. In either case, call a physician or the Health Authorities immediately and tell them the name of the poison involved. If clothing is saturated with poison, remove it to prevent further injury. Persons removing the clothing must take care not to become contaminated with the material. Keep patient warm and quiet. If breathing has stopped, start resuscitation immediately but remember that mouth-to-mouth artificial respiration may expose rescuer to the fumes inhaled by the victim.

Unnecessary personnel should be evacuated from the area known or suspected to be contaminated by materials and their vapours. Monitoring equipment should be used to aid in determining and evaluating contaminated area.]

Appropriate chemical protective clothing should be worn by personnel combating the incident and should be decontaminated or properly disposed of after exposure.

If fire is present. Fires can usually be fought using conventional means, but all personnel in the area should have appropriate chemical protective equipment. Runoff water may be decontaminated. Precautions should be taken to contain and reduce area affected by runoff. Digging holes or building sand or earthen dikes to contain runoff is usually effective. Effects of this action on post-accident clean-up and long-term environmental problems should be considered.

If fire is not present. If a container of Division 6.1 (poisonous) material is leaking, no one should enter the contaminated area without positive pressure SCBA and appropriate chemical protective clothing. If qualified persons are available attempt to stop or reduce the leakage. If qualified persons are available, attempt to stop or reduce the amount of leakage. At least two persons should work together. The second person should be available to help the first in case of an emergency.

Leaks from small containers, such as drums, can often be stopped or reduced by positioning container so that the opening is above the material level. With tank cars or tank trucks, this may be possible if heavy equipment and operators trained in the necessary techniques are available. Rolling tank cars or trucks is a specialised 'art' and not every operator of heavy equipment has the necessary skill.

Digging holes or building sand or earthen dikes to prevent material from spreading is usually effective. Effects of this action on post-accident cleanup and long-term environmental problems should be considered. Cleanup procedures will depend on material involved.

Division 6.2. Infectious (etiologic) substance.



General. Division 6.2 (infectious) substances are living microorganisms or their toxins that cause or may cause human or animal disease. This Division also includes ‘diagnostic specimens’, ‘biological products’ and regulated medical wastes. Whenever packages bearing ‘Infectious Substances’ labels are discovered leaking in transit, all unnecessary movement of vehicle must cease and vehicle must be isolated. Contact with the material must be avoided. Health Authorities must be contacted immediately.

**14.7.- Class 7. Radioactive Materials.**



General. These materials emit ionising radiation that is hazardous. The radiation is invisible and can only be detected by special instruments. Exposure to intense radiation may be immediately harmful to humans. Long-term human exposure to low levels of radiation may also be hazardous.

Assistance in handling and arranging for disposal of Class 7 (Radioactive) materials should be requested for specialised agencies within and/or outside the country.

General instructions in the case of an accident are:

1. Keep all persons as far away as practicable until the extent of hazard has been determined.
2. Trains and vehicles may pass if they can do without stopping in the suspected area and without scattering spilled material.
3. PERSONS NOT PROPERLY PROTECTED AGAINST RADIATION MUST NOT BE PERMITTED TO APPROACH THE VICINITY WHEN RADIOACTIVE MATERIAL HAS BEEN RELEASED. Protection of personnel will depend on the circumstances and

may consist solely of radiation monitoring. When Class 7 (radioactive) material has been scattered, anti-contamination clothing and a means of shielding personnel from radiation may be necessary.

4. If material is involved in fire or spilled, avoid exposure to smoke, fumes or dust.
5. Take precautions to prevent spreading spilled materials. If Class 7 (Radioactive) material is submerged, all persons must be kept as far from the area as is practicable until qualified persons are available to direct the removal of submerged material.

Detail Procedure. If there is evidence of any damage to a shipping container, determine with proper instruments, whether outside container has been broken open and whether material has been exposed or spilled. If container is damaged, proceed as follows, depending on the type of package involved.

For Small Packages. (Fiberboard or wooden boxes, or steel or fiber drums weighing less than 200 pounds:

1. Keep all persons at least 10 feet away and do not remain near exposed material unnecessarily.
2. If it is impractical to keep persons away, cover radioactive material with sandbags or at least 4 inches of earth or sand. Use a long handled shovel. Remain near material only as long as necessary to accomplish work.
3. Contact the nuclear regulatory authorities for removal of the material and decontamination.

For packages of heavy steel or metal construction weighing 200 pounds or more and lined or partially lined with lead, concrete or paraffin:

1. If there is any evidence that container has broken open or is seriously damaged, observe recommendations in 'general instructions' above until assistance is provided from a competent authority.
2. Even though a container has not been opened or damaged, persons should not remain near container unnecessarily until it is determined that no radiation hazard exists.

Low specific activity (LSA) materials, such as uranium and thorium ores, waste paper or other contaminated scrap materials, are packed in ordinary containers such as bags, steel or fiber drums, or wooden or fiber boxes and may be in the form of powders, liquids or sludges.

1. Request assistance from qualified persons from Authorised Agencies.
2. Avoid direct contact with spilled materials.
3. Protect persons from breathing any dust that may be around these materials.
4. Prevent spread of spilled and keep it out of streams, reservoirs, or other bodies of water.

#### 14.8.- Class 8. Corrosive Materials.



General. Class 8 (corrosive) material are liquids or solids that cause visible destruction or irreversible damage to human skin or liquids that have a severe corrosion rate on steel.

If Class 8 (corrosive) materials come in contact with the body, water should be applied immediately in quantities large enough to wash away material. A general rule is to liberally wash affected area for at least 15 minutes, then seek medical advice. If this action is taken quickly enough, it is possible to prevent or reduce injury.

Avoid breathing vapours of Class 8 (corrosive) materials. They can cause severe respiratory distress. These effects may be delayed for hours or days.

If contents of a container of corrosive materials must be transferred, only persons familiar with the dangers and transfer techniques should perform the task. Special attention must be paid to the materials of construction of pumps, hoses and fittings to ensure compatibility with the product transferred. A good supply of water should be kept at hand in case of splashes or spills.

If fire is present. The heat of a fire can accelerate the corrosive action of some materials. Some corrosive materials are combustible.

If fire is not present. If the leak is small, a bucket can be used to prevent material from spreading. The bucket should be made of a material that will not react with the corrosive involved. Larger spills will require digging holes or building earthen or sand dikes. Saturated soil may have to be neutralised or disposed of to prevent long-term environmental harm. Factors to consider in the decision for containment are soil characteristics and location of water. If soil is porous or near watershed or water courses, additional measures, such as lining the containment area and on-site soil neutralisation, may be necessary.

Leaks from small containers such as drums can often be stopped or reduced by positioning container so that the opening is above the material level. With tank cars or tank trucks, this may be possible if heavy equipment and operators trained in the necessary techniques are available. Rolling tank cars or tank trucks is a specialised 'art' and not every operator of heavy equipment has the necessary skill.

#### 14.9.- Class 9. Miscellaneous Hazardous Materials.



General. These materials are regulated because they may pose an unreasonable risk to health, safety or property when transported but do not meet the definitions of other classes. Class 9 (miscellaneous hazardous materials) materials that have an anaesthetic, irritating, noxious, toxic or similar property that can cause extreme annoyance or discomfort to passengers and crew of transport vehicles and/or aircraft.

#### **15.- Haz-Mat Incident Action Sub-Committee (HAZMAT Sub-Committee).**

It is suggested that a Haz-Mat Incident Action Sub-Committee (HAZMAT Sub-Committee) is created within the OPAC to plan and execute appropriate response in the case of an incident involving hazardous materials. The Sub-Committee should have as its members, at least the following:

- Saint Lucia Air and Seaports Authority (Chairperson)
- Sustainable Development and Environment Department. Ministry of Planning (Deputy Chairperson)
- National Emergency Management Office
- Fire Service (OSC Land)
- Police Marine Unit (OSC Sea)
- Royal Saint Lucia Police Force (evacuation and security)
- Fisheries Department
- Saint Lucia Solid Waste Management Authority
- Ministry of Health
- Caribbean Environmental Health Institute (CEHI)
- Ministry of Foreign Affairs
- Pesticides Control Board
- Saint Lucia Bureau of Standards
- Shell Antilles & Guiana's LTD Bulk Station
- Texaco Bulk Station
- HESS Oil (Saint Lucia LTD)
- Any private company handling hazardous materials should be member of this sub-committee to know what hazardous materials they import/export, pack, use, produce, store and transport.
- Transportation companies
- Airlines

Initial tasks of the Sub-Committee should be:

1. Establish the HAZMAT Sub-Committee within the OPAC
2. Invite the private industry to be permanent members of the Sub-Committee
3. Initiate an inventory of hazardous substances in Saint Lucia
4. Initiate a revision/improvement/design/enactment of Haz-Mat Legislation in Saint Lucia
  - a. Import/Export
  - b. Packaging
  - c. Labels/Placards
  - d. Protection equipment
  - e. Occupational health
  - f. Storing
  - g. Transporting
  - h. Inspection
  - i. Final Disposal
  - j. Emergency Response
  - k. Liability/Fines.
5. Ensure that the first responders have enough an adequate personal protective equipment adequately stored and in good shape and available at all times.
6. Revise the Haz-Mat Plan regularly
7. Revise specific private sector emergency plans and procedures
8. Test the Haz-Mat Plan regularly
9. Ensure that private sector emergency plans are updated and tested regularly.
10. Ensure that all plans and procedures are compatible.
11. Identify and inventorise resources from the Sub-Committee members (governmental and private) in order to optimise their use in the case of an incident involving hazardous materials.

Since the OPAC has been working for years in the Oil Spill Plan and in the response to oil spills it will be very convenient that it is the OPAC (the HAZMAT Sub-Committee) that starts these works as soon as possible with the aid of this Plan.

Since the Oil Spill Plan, already mentions that the OPAC and the Oil Spill Plan itself would be taken as a base for planning and response to a Haz-Mat accident, the present plan doesn't intend to make things more difficult, on the contrary, the Plan suggests the same committee, an additional Sub-Committee with OPAC members (plus a few additions) and similar response procedures.

### **16.- General Response Functions.**

The response to an incident depends as we have seen in previous sections of this plan, of the type of substance, its characteristics, the amount of substance involved and the possible scenarios. The incident has to be assessed, the scenario and the possible response have to be determined based in the capacity of the responders to control the event (personnel, training, equipment, etc.).

The final determination of the control measures and of the personnel that have to respond to control the incident has to be determined by the assessment of the conditions mentioned in the previous paragraph; thus initial response would be given by members of the Haz-Mat Incident Action Sub-Committee (or HAZMAT Sub-Committee from the OPAC). If their capacity is overwhelmed then the shipper/consignee should be the one that has to control the incident with their own personnel and equipment; if the shipper/consignee doesn't have the capacity to respond, then the response and control of the hazardous material involved must be given by shipper/consignee resources from overseas or from specialised companies hired by the shipper/consignee.

The philosophy of this plan is that the Government of Saint Lucia is responsible for the general co-ordination of the response for the protection of the population and natural resources, but the shipper/consignee are responsible for safety and preventive measures in the packaging, shipping, importing, storing, transportation, use, reuse and final disposal of the hazardous materials they manage. Therefore, the shipper/consignee is responsible to have trained personnel (drivers, employees, response teams) and equipment (control, confinement, recovery, protection, etc) and are liable for any damage/cost to people, infrastructure, agriculture, wildlife, and natural resources (water, underground water, soil, subsoil) until the final rehabilitation and restoration of the damaged caused. Of course, this must be based on enacted legislation and active enforcement of the Law.

Beside this Plan and these Emergency Procedures, private companies handling hazardous materials must have their own emergency plan and emergency response procedures in the case of an incident involving the hazardous materials they handle.

The following response functions have been identified and the responsible organisations for them.

**Table 16.1.- Response Functions and Key Responsibilities.**

| <b>Response Function</b> | <b>Key Responsibilities</b>           |
|--------------------------|---------------------------------------|
| Notification             | NEMO                                  |
| Incident Assessment      | OSC. HAZ MAT Sub-Committee responders |
| Evacuation               | Royal Saint Lucia Police Force        |
| Control of the Incident  | OSC/Shipper/Consignee                 |
| Medical Attention        | MOH                                   |
| EOC                      | NEMO                                  |
| Damage Assessment        | OSC/HAZ-MAT Sub-Committee/NEMO        |
| Public Information       | SLU-GIS                               |

|                              |                               |
|------------------------------|-------------------------------|
| Clean-up and Final Disposal. | SLSWMA/SDEU/Shipper/Consignee |
|------------------------------|-------------------------------|

### **16.1.- Notification.**

As in the Oil Spill Plan (OSP), the NEMO is responsible for the notification procedure to ensure the general response is activated all the responders will initiate their own response responsibilities.

### **16.2.- Incident Assessment**

The OSC or the first to arrive at the incident site will start the assessment of the situation considering: location, type of incident, type of substance, amount of substance, current situation, possible immediate situations/scenarios and response/control measures: evaluation of accident vs. response capacity, need for evacuation, immediate control measures, etc. An adequate and fast initial assessment ensures an adequate and effective response and the protection of the population, infrastructure, environment and the responders themselves. It is common to determine hazard zones when arriving to the site: a Hot Zone is the zone where the hazardous material is located and access is restricted and controlled; a Warm Zone, a transition zone between the Hot and the Cold zones used to prevent contaminants to spread to uncontaminated areas, and a Cold Zone, which is a zone beyond potential contamination where the Command Post is normally established.

Only in the case that because of the magnitude and the type and extent of the threat and/or damage posed by the incident and the hazardous materials involved, an aerial flight assessment of the situation would be conducted.

### **16.3.- Evacuation**

According to the incident, it must be determined if evacuation is needed and the extent of it. It has to be conducted as fast as possible by the Police. Unlike other events, the evacuation, except in exceptional cases, is likely to take hours and not days (hurricane), months (earthquakes, or years (volcanic eruption).

Evacuation must be conducted immediately before some effects of the hazardous materials involved in the incident occur (leaks, spills, explosions, etc) to protect the population. A quick evaluation from the OSC and a quick response and deployment of personnel from the Police is needed. The use of the media through NEMO and SLU-GIS is also of vital importance to inform the population in time.

### **16.4.- Control of the Incident.**

The control of the leak, fire, explosion, spill, jet-fire, pool-fire or any other current and/or possible scenario due to an accident involving hazardous materials must be based in the initial assessment made by the OSC. If control can be done by the OSC and the response team it should be done immediately proving the personnel is not at risk and there are completely capable of

doing it due to previous training and to the wearing of adequate protective equipment. If their capacity is overwhelmed or they do not count with the adequate resources, the control of the incident must be done by the shipper/consignee with their own local or overseas resources or by them hiring a specialised company from abroad.

#### **16.5.- Medical Attention.**

Due to the different hazardous materials involved in an incident, their characteristics and the characteristics of the incident itself, there is a wide gamut of possible damage and injuries to the population: damage due to an explosion, fire, intoxication by inhalation or ingestion of poisonous substances, dermal intoxication, asphyxia, damage to eyes and mucous membranes by irritant gases, damage to skin, eyes or other tissues due to corrosive or radioactive materials; immediate damage or long-term damage or permanent damage due to carcinogenic or teratogenic and mutagenic substances, etc. The Ministry of Health must be aware of the possible damage from specific substances. The Ministry of Health must be aware of specific kinds of treatment that must be given to the injured and the protection health responders need.

#### **16.6.- Emergency Operations Centre (EOC).**

Only in the exceptional case that the accident is so large or so dangerous that puts at great risk the life and property of the Saint Lucian people, the EOC would be activated to co-ordinate a national response. It would operate until the danger is gone.

#### **16.7.- Damage Assessment.**

After the incident it is necessary to assess the damage occasioned by the incident: damage to people, infrastructure, services, housing, agriculture, animals, fisheries and natural resources such as water and soil. The extent of damage and its cost must be estimated. Only in the case of an accident of great magnitude a helicopter would be used to make an initial aerial assessment. The Chairperson of the Sub-Committee should recommend this to the NEMO.

#### **16.8.- Public Information.**

The public must be informed about what is going on. NEMO with information and reports of the OSC and the HAZMAT Sub-Committee will send to the SLU-GIS information to be disseminated through the media. This information must mention what happened (type of incident), where it happened, immediate risk to life and health, immediate actions to be taken by the population, actions taken by the response teams and general recommendations. Messages must be issued until the situation goes back to normal.

#### **16.9.- Clean-Up and Final Disposal.**

The clean-up activities also depend on the type of incident. It could include just to clean-up debris or can be very complex as to decontaminate soil and subsoil. Activities can take hours, days or years depending on the type of pollutant and on the extent of contamination. Again, this

activity needs an assessment of the level and type of contamination to determine the resources and time needed to decontaminate/clean up after an incident.

Final disposal of hazardous materials that cannot be recovered and reused including contaminated and non-contaminated material (debris, water, equipment, earth, sand, etc.) must be done. Depending on the type of hazardous material and its characteristics, adequate methods of handling, containing, transporting and disposing of those materials have to be determined. Again, if the SLSWMA has the capacity to do so without any danger it has to be done as soon as possible, but if there is the need for specialised personnel, equipment and vehicles they have to be provided by the shipper/consignee locally or from overseas and have to be provided as soon as possible. The site for final disposal has to be chosen according to the characteristics of the substance. An adequate site for final disposal has to be determined, either in Saint Lucia or abroad.

### **17.- Final Preparedness and Response Responsibilities.**

The final preparedness and response activities needed to ensure that this plan will operate effectively now and in the future are included in table 17.1. below. Organisations with main responsibilities and key support are also included.

**Table 17.1. Final Table of Responsibilities.**

| <b>Task</b>                                                | <b>Main Responsible</b>         | <b>Key Support</b>                                                                |
|------------------------------------------------------------|---------------------------------|-----------------------------------------------------------------------------------|
| <b>Preparedness.</b>                                       |                                 |                                                                                   |
| 1.- Inventory of Sources of Hazardous Materials            | HAZ MAT Sub-Committee           | NEMO, MOPD, MOH, Ministry of Transport, Private Industries..                      |
| 2.- Revision and Design of Hazardous Materials Regulations | HAZ MAT Sub-Committee           | NEMO. Private Sector.                                                             |
| 3.- Protection Clothing and Equipment                      | HAZ MAT Sub-Committee           | OSC.                                                                              |
| <b>Emergency Response</b>                                  |                                 |                                                                                   |
| 1.- Notification                                           | NEMO                            | HAZ MAT Sub-Committee Chairperson, OSC.                                           |
| 2.- Incident Assessment                                    | OSC                             | Shipping/Consignee, Department of Fisheries, MOH, SDEU, SLSWMA, Met Office, NEMO. |
| 3.- Evacuation                                             | Royal Saint Lucia Police Force. | OSC, Sub-Committee Chairperson, NEMO.                                             |
| 4.- Control of the Incident.                               | OSC                             | Shipper/Consignee.                                                                |
| 5.- Medical Attention.                                     | CMO/MOH                         | MOH, Hospitals, Red Cross, Ambulance Services.                                    |
| 6.- Emergency Operations Centre.                           | NEMO                            | EOC members, OSC, HAZ MAT Sub-Committee                                           |

|                                 |         |                                                                                                                                                      |
|---------------------------------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                 |         | Chairperson.                                                                                                                                         |
| 7.-Damage Assessment            | OSC     | MOH, SDEU, SLSWMA, Police, Fisheries, Sub-Committee Chairperson, Shipper/Consignee, NEMO, Damage And Needs Analysis Disaster Committee, MOW, SLASPA. |
| 8.- Public Information          | SLU-GIS | NEMO, HAZ MAT Sub-Committee Chairperson.                                                                                                             |
| 9.- Clean-up and Final Disposal | SLSWMA  | SDEU, OSC, Sub-Committee Chairperson, Shipper/Consignee.                                                                                             |

### **18.- Emergency Procedures.**

We will have one Emergency Procedure for each of the Emergency Response Functions as follows:

- HAZMAT- 001.- Notification.
- HAZMAT- 100.- Incident Assessment.
- HAZMAT- 200.- Evacuation.
- HAZMAT- 300.- Control of the Incident.
- HAZMAT- 400.- Medical Attention.
- HAZMAT- 500.- EOC.
- HAZMAT- 600.- Damage Assessment.
- HAZMAT- 700.- Public Information.
- HAZMAT- 800.- Clean-Up and Final Disposal.

The Emergency Procedures are presented in the next pages. They have to be revised, tested and implemented by the HAZ MAT Sub-Committee and its members.

## **PART IV. STANDARD OPERATING PROCEDURES.**

### **Emergency Procedure HAZMAT-001- Notification**

#### **Version**

Version 0. October 1<sup>st</sup> , 2003.

#### **Objectives**

To notify to the members of the Hazardous Material Sub-Committee involved in the Haz-Mat Plan about the threat and/or presence of an incident involving hazardous materials and about its magnitude so the adequate tiered response envisaged in the Plan can be immediately implemented.

#### **Responsible for the Procedure:**

##### **Main:**

Director of the National Emergency Management Office (NEMO).

##### **Secondary:**

Deputy Director of the National Emergency Management Office (NEMO)

#### **Steps of the Procedure.**

##### **A.- The Director of NEMO shall:**

##### **Permanent:**

- 1.- Participate in the HAZMAT Sub-Committee meetings and inform the members about this procedure and its modifications.
- 2.- Keep an updated directory of the HAZMAT Sub-Committee members that have to be notified immediately after receiving notice that an incident involving hazardous materials has occurred.
- 3.- Keep a copy of this procedure and its attachments at NEMO and one at home with the updated directory of the HAZMAT Sub-Committee members.
- 4.- Discuss permanently with the HAZMAT Sub-Committee chairperson about the improvement and updating of this procedure and its attachments.

5.- Participate in simulation exercises to test and update this procedure.

6.- Promote, jointly with SLU-GIS and the Sub-Committee, awareness campaigns for the public about hazardous materials incidents and their immediate notification to the authorities (Fire Service, NEMO, Police)

7.- Be assisted at all times, and in his/her absence be substituted by the Deputy Director of NEMO in all the steps of this procedure.

In the case of receiving notification that a Haz Mat incident has occurred

8.- When receiving a phone call from the public or from any governmental and/or private organisation, ask information about:

- a) Name, address and contact information of the person that notifies.
- b) Type/Description of incident.
- c) Time when the incident occurred.
- d) If it hasn't occurred, when is it likely to occur
- e) Location
- f) Cause and sources of the incident, if known.
- g) Name of substance, if known.
- h) Characteristics of the substance: gas, liquid, solid.
- i) Type, class and division of substance and, if known extent of the incident
- j) UN ID number.
- k) If there is fire present or not.
- l) If there are any injured or casualties.
- m) Name and telephone number of company responsible for the shipment or consignee.

See Attachment 1: Notification Form.

9.- Contact the members of HAZMAT Sub-Committee as follows:

- a) Chairperson of the Sub-Committee.
- b) Fire Chief (OSC Land)
- c) Police Marine Unit (OSC Sea)
- d) Police.
- e) Company responsible for shipment and/or consignee.
- f) Chief Medical Officer.
- g) Chief Fisheries Officer.

See Directory in Attachment 2.

10.- Inform them about the incident and give them the information from point 8.

11.- Ask them to go to the site and to assess the incident and inform NEMO about the situation.

12.- Receive information from the Sub-Committee Chairperson or from the OSC about the hazmat incident.

13.- If the Chairperson of the HAZMAT Sub-Committee and the OSC determine so, because of the characteristics of the incident, notify immediately to :

- a) Sustainable Development and Environment Department.
- b) Saint Lucia Solid Waste Management Authority.
- c) SLASPA.
- d) Caribbean Environmental Health Institute (CEHI)
- e) GIS Principal Officer.
- f) Meteorological Office
- g) Any other as per request by the Sub-Committee

See Directory in Attachment 2.

15.- If there is the need to go to the incident site, go immediately.

16.- If there is the need to inform the public, do it in co-ordination with the Sub-Committee Chairperson and OSC and through SLU-GIS. Call SLU-GIS and agree on how the information will be provided.

17.- If the incident has been controlled and after being informed so by the OSC and/or the Sub-Committee Chairperson notify to the organisations and responders that the response activities are finished.

18.- If needed, and after consultation with the OSC and the Sub-Committee chairperson, maintain key personnel on site for damage assessment and other activities as needed.

19.- If, according to the Sub-Committee Chairperson and the OSC, the incident overwhelms the response capacity of the response teams then notify to other organisations needed for the response as per request of the Sub-Committee Chairperson and the OSC to NEMO.

20.- Evaluate, jointly with the Sub-Committee Chairperson and the OSC, the need of activating the EOC.

21.- If it is necessary, activate the EOC and notify the following organisations:

| Team # 1:                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Team # 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Director of NEMO.<br>Chairperson HAZMAT Sub-Committee<br>Permanent Secretary, External Affairs or nominee.<br>Chief Medical Officer<br>Police Commissioner<br>Chief Fire Officer<br>The Principal Information Officer<br>The Permanent Secretary, Ministry of Tourism<br>Amateur Radio and Citizen Band<br>Chairpersons of all the Disaster Committees<br>Red Cross Representative<br>SLASPA Representative<br>Stenographer/typist<br>After 12 hours Team 2 should be in the EOC. | Cabinet Secretary<br>Deputy Chairperson HAZMAT Sub-Committee<br>Permanent Secretary, Planning<br>Deputy National Disaster Coordinator<br>Deputy Permanent Secretary, External Affairs<br>Medical Officer Health<br>Deputy Police Commissioner<br>Deputy Chief Fire Officer<br>Representative GIS<br>Representative Ministry of Tourism<br>Amateur Radio and Citizen Band<br>Deputy Chairpersons of National Disaster Committees<br>Red Cross Representative<br>SLASPA Representative<br>Stenographer/Typist<br>After 12 hours team 1 should come back to the EOC |

Additionally, the following personnel will be in the EOC:

- 2 Policemen provided by the Police Force to provide security
- 1 or 2 (to be decided by Telecommunications Disaster Committee) Amateur Radio Operator provided by the Telecommunications Disaster Committee
- 3 Message Receivers (runners)
- Situation Reporter (s) per sector. Each EOC member (sector) should report every situation they are involved in. This situation considers one reporter per EOC sector.
- 1 Damage Assessment Logger

22.- Once the incident is controlled, deactivate the EOC if activated and go to END OF PROCEDURE

23.- If the response to the incident, according to the Sub-Committee Chairperson and the OSC requires assistance from abroad, then notify to:

- a) Shipping/Consignee.
- b) CDERA.
- c) Other international organisations that could assist with the control of the substance.

24.- Once the incident is under control, deactivate the EOC and go to END OF PROCEDURE.

**B.- The Deputy Director of NEMO shall:**

- 1.- Know this procedure and participate in its revision, updating, testing, execution and evaluation.
- 2.- Assist the Director in all the steps of the procedure.
- 3.- In the absence of the Director, execute all the steps of this procedure.

END OF PROCEDURE

**Attachments**

- 1.- Format for the receipt of information about a hazardous materials incident
- 2.- Directory of persons and organisations to be notified of a haz-mat incident.

**HAZMAT – 001 – Notification:**  
**Attachment 1: Format for the initial receipt of information about a hazardous materials incident.**

(To be updated and sent by NEMO to Members of the HAZMAT Sub-Committee)

1.- Date: \_\_\_\_\_

2.- Hour \_\_\_\_\_

3.- Name of person that receives the information  
\_\_\_\_\_

4.- Name, address and contact information of the person that notifies  
\_\_\_\_\_

5.- Time of the incident \_\_\_\_\_

6.- Type/Description of the incident \_\_\_\_\_

7.- If it hasn't occurred, when it is likely to occur \_\_\_\_\_

8.- Location \_\_\_\_\_

9.- Cause and sources of the incident, if known \_\_\_\_\_

10.- Name of substance, if known. \_\_\_\_\_

11.-Characteristics of the substance: gas, liquid, solid.  
\_\_\_\_\_

12.- Type, class and division of substance and, if known, extent of the incident  
\_\_\_\_\_

13.- UN ID Number \_\_\_\_\_

14.- If there is fire present or not. \_\_\_\_\_

15.- Measures taken by owner/transport crew/response team/community/others \_\_\_\_\_

16.-Name and telephone number of company responsible for the shipment or consignee \_\_\_\_\_

17.- Signature of Receiver \_\_\_\_\_

**HAZMAT 001.- Notification.**

**Attachment 2. Directory of personnel to be notified in the case of an event involving hazardous materials.**

| <b>Name</b>                      | <b>Position</b>                                | <b>Office</b>                 | <b>Fax</b>                  | <b>Home</b>  | <b>Mobile</b> | <b>Beeper</b>               | <b>Email.</b>                                                |
|----------------------------------|------------------------------------------------|-------------------------------|-----------------------------|--------------|---------------|-----------------------------|--------------------------------------------------------------|
| <b>Dermot Saltibus</b>           | Chairman                                       | 453<br>2855/<br>452<br>2893/4 | 452<br>2066<br>452<br>2062  | 452b<br>2897 | Viking<br>5   | 481<br>0357                 | saltibusd@slaspa.com<br>dsaltibus@hotmail.com                |
| <b>Christopher Corbin</b>        | Deputy<br>Chairman.<br>Ministry of<br>Planning | 468<br>5041/<br>468<br>4459   | 452<br>2506/<br>451<br>6958 | 453<br>2547  |               | 354 14<br>89                | cristojc@yahoo.com                                           |
| <b>Ms. Dawn French</b>           | NEMO<br>Director                               | 452<br>3802                   | 453<br>2152                 |              |               | 481<br>0339/<br>484<br>9860 | eoc@candw.lc                                                 |
| <b>Lambert Charles</b>           | Fire<br>Department<br>911                      | 542<br>2373/<br>1-7667        | 452<br>3064                 | 453<br>5008  |               |                             |                                                              |
| <b>Mr. Ausbert Regis</b>         | Acting Chief<br>of Police or<br>nominee 999    | 452 28<br>54 x<br>101         |                             |              |               |                             |                                                              |
| <b>Dr. Mc Donald Chase</b>       | Chief Medical<br>Officer.                      | 453 21<br>95                  |                             |              |               |                             |                                                              |
| <b>Vaughn Charles</b>            | Department of<br>Fisheries                     | 468<br>4134/35                | 452<br>3853                 | 458<br>5085  |               |                             | deptfish@slumasse.org                                        |
| <b>Embert Charles</b>            | PIO. SLU-GIS                                   | 468<br>2111                   | 453<br>1614                 | 452<br>82 53 |               | 485<br>3538                 |                                                              |
| <b>Guy Mathurin</b>              | Pesticides<br>Board                            | 450<br>2375                   | 450<br>1185                 |              |               |                             |                                                              |
| <b>Marvin Williams</b>           | Solid Waste<br>Authority                       | 453<br>2208                   | 453<br>6315                 |              |               |                             | sluswma@candw.lc                                             |
| <b>Andre Cox</b>                 | Coast Guard<br>Commander                       | 452<br>2595                   | 543<br>2799                 | 458<br>1911  |               |                             |                                                              |
| <b>Herbert Regis</b>             | Meteorological<br>Office                       | 468<br>4314/15                | 453<br>2769                 | 452<br>1568  |               |                             | slumet@hotmail.com                                           |
| <b>Egbert Lionel</b>             | Legal Affairs                                  | 452 36<br>22                  | 453<br>6315                 |              |               |                             |                                                              |
| <b>Francine Clouden</b>          | CEHI                                           | 452<br>2501/<br>1412          | 453<br>2721                 |              |               |                             | cehi@candw.lc                                                |
| <b>Tom Kane</b>                  | Hess Oil                                       | 452<br>3904                   | 452<br>5688                 |              |               |                             | tkane@hess.com                                               |
| <b>Augustine Vincent Douglas</b> | TEXACO                                         |                               |                             |              |               |                             | <a href="mailto:augustdv@texaco.com">augustdv@texaco.com</a> |

## **Emergency Procedure HAZMAT-100- Incident Assessment.**

### **Version**

Version 0. October 1<sup>st</sup>, 2003.

### **Objectives**

To evaluate the extent and magnitude of an incident involving hazardous materials in order to give an adequate response that involves all the organisations and resources needed.

### **Responsible for the Procedure:**

#### **Main:**

On Scene Commander (Fire Service. Land)  
On Scene Commander (Police Marine Unit. Sea)

#### **Secondary**

Chairperson HAZMAT Sub-Committee.  
Chief Medical Officer.  
Chief Fisheries Officer  
Saint Lucia Solid Waste Management Authority  
Sustainable Development and Environment Department  
SLASPA  
Caribbean Environmental Health Institute

### **Steps of the Procedure.**

#### **A.- The On Scene Commander (OSC) shall:**

##### **Permanent:**

- 1.- Participate in the HAZMAT Sub-Committee meetings and inform the members about this procedure and its modifications and updating.
- 2.- Receive training on his responsibilities: first responders, incident command system, use of protection equipment; hazardous materials, etc.
- 3.- Participate in simulation exercises to test and update this procedure.
- 4.- Participate in the Sub-Committee works for developing a hazard materials inventory in Saint Lucia.

5.- Ensure that the emergency responders have enough and adequate protection equipment for the different classes of hazardous materials handled in Saint Lucia.

6.- Ensure that the emergency responders know how to use the protection equipment.

7.- Ensure that the protection equipment is always available and in good shape to be used in the case of an incident.

8.- Know how to respond to the different scenarios posed by the different hazard classes.

9.- Know what other resources (equipment, personnel, etc.) do the private companies handling hazardous materials have.

10.- Ensure that there is always co-ordination between the emergency responders from the government of Saint Lucia and those from private companies that handle hazardous materials in Saint Lucia.

In the case of receiving notification that an incident has occurred:

11.- If not received by NEMO, inform ***THE DIRECTOR*** OF NEMO immediately, so the rest of the organisations can be notified as stated in Emergency Procedure HAZMAT-001- Notification.

12.- Get as much information about the incident as possible:

- a) Name, address and contact information of the person that notifies.
- b) Type/Description of incident.
- c) Time when the incident occurred.
- d) If it hasn't occurred, when is it likely to occur.
- e) Location.
- f) Cause and sources of the incident, if known.
- g) Container shape and size
- h) Name of substance, if known.
- i) Characteristics of the substance: gas, liquid, solid.
- j) Type, class and division of substance and, if known extent of the incident.
- k) UN ID number.
- l) If there is fire present or not.
- m) If there are any injured or casualties.
- n) If there is any damage to infrastructure or to the environment.
- o) Name and telephone number of company responsible for the shipment or consignee.

13.- Depending on the information and if it is enough and reliable, prepare the adequate personnel, equipment and vehicles for the type of event.

14.- Go to the site where the incident is reported to be.

15.- Once in the site, take over the operations from any other response organisation (s) that might have arrived earlier.

16.-Receive information from:

- a) The responsible for the hazardous materials involved in the incident (Shipper/Consignee) about dangers posed by the substance, response needed and about their resources for the response.
- b) The Chief Medical officer about injured and medical attention
- c) The Police about evacuation
- d) The Sustainable Development and Environmental Department about damage or possible damage to the environment and about measures to protect it.
- e) The Fisheries Department about the situation of fisheries.
- f) The Saint Lucia Solid Waste Management Agency about possible wastes that could be generated from the incident and their characteristics.
- g) SLASPA about the situation in the air and seaports.
- h) The CEHI about possible damage and activities regarding environmental health.

17.- Isolate the area and identify a safe location for the establishment of a command post and start operations from there.

18.- Determine the source of the incident and identify the responsible for the hazardous materials (shipper/consignee).

19.- Assess environmental conditions: wind, rain, humidity, topography, steepness of the terrain, nearby gutters, sewage, etc.

20.- Prepare an assessment report and give it immediately to the Chairperson of the Sub-Committee so it can be given to NEMO's Director. The report must include, at least:

1. Description of the incident.
2. Damage or possible damage including
3. Number and type of injured and number of casualties, if any.
4. Measures taken and to be taken.
5. Recommendations for the population.
6. Resources needed, if any.

21.- If needed, prepare to give the adequate response to control the incident according to Emergency Procedure HAZMAT 400-Control of the Incident.

22.- Prepare to assess damage according to Emergency Procedure HAZMAT – 600-Damage Assessment.

23.- Inform the Sub-Committee Chairperson and/or the NEMO Director about the situation when necessary until the incident is controlled and there is no longer risk.

**B.- The Chairperson of the HAZMAT Sub-Committee shall:**

- 1.- Advise the OSC at all times about measures to be taken regarding the incident.
- 2.- Assist the OSC at all times with his/her activities.
- 3.- Based on the situation, inform NEMO about the situation.
- 4.- Request to NEMO aerial transportation for an aerial assessment, if needed.
- 5.- Contact NEMO, when needed, for information purposes and for the request of additional resources as needed by the OSC.
- 6.- Take note of the initial assessment in order to include this information in the final report along with response taken, results and recommendations.
- 7.- If considered necessary, ensure that photographs and samples are taken for future determination of the nature/origin of the substance and fining of the polluter.

**C.- The Chief Medical Officer.**

- 1.- After notification, go to the incident location.
- 2.- Once the hazardous substance is determined, be informed by the OSC and the Sub-Committee Chairperson about health risks of the population.
- 3.- Inform the OSC about the resources from the health sector to face the threat posed by the incident.
- 4.- Notify within the health sector about the situation and alert and request resources as needed.
- 3.- Inform the OSC and the Sub-Committee chairperson about the preparedness and response activities from the health sector.
- 4.- Advise the OSC and the Sub-Committee Chairperson about recommendations for the population to protect their life health.

**D.- The Chief Fisheries Officer shall:.**

- 1.- After notification, go to the incident location

2.- Advise and assist the OSC and the HAZMAT Sub-Committee Chairperson on any matters regarding the protection of fisheries.

3.- Evaluate damage regarding fisheries and inform the OSC and the HAZMAT SUB-COMMITTEE Chairperson.

4.- Take, when applicable, any information needed for fining the responsible for the incident and inform and advice the OSC and the Sub-Committee Chairperson on these matters.

**E.- The Saint Lucia Solid Waste Management Authority shall:**

1.- Go to the incident site when notified by NEMO.

2.- Advise and assist the OSC and the Sub-Committee Chairperson any waste management matters.

3.- Make an initial assessment of the implications for solid waste management occasioned and/or that will be occasioned by the incident and inform the OSC and the Sub-Committee Chairperson.

**F.- The Sustainable Development and Environment Department shall:**

1.- Go to the site after notification by NEMO.

2.- Advise and assist the OSC and the Sub-Committee Chairperson on any environmental protection matters needed.

3.- Provide information to the OSC about the state of the environment near the incident and possible threats to it by the incident.

**G.- The Saint Lucia Air and Sea Ports Authority shall:**

1.- Go to the incident site when notified by NEMO and report to the EOC.

2.- Go to the site immediately if the incident occurred in any air or sea port in Saint Lucia and notify the Director of NEMO.

3.- Provide information to the OSC about the situation and operation of air and seaports.

**H.- The Caribbean Environmental Health Institute, in co-ordination with the MOH, shall:**

1.- Go to the incident site when notified by NEMO and report to the OSC.

2.- Advise and assist the OSC and the Sub-Committee Chairperson on any environmental health matters.

3.- Assist in the initial assessment of damage and/or risk to health and the environment and inform the OSC and the Sub-Committee Chairperson.

4.- Recommend, depending on the situation, actions and organisations to be contacted for the protection of the health and the environment.

5.- Inform the OSC about assistance that can be provided by CEHI or other regional or international organisations regarding resources (personnel, materials, equipment, laboratories, analyses, etc.).

END OF PROCEDURE

**Attachments:**

None.

## **Emergency Procedure HAZMAT-200- Evacuation.**

### **Version**

Version 0. October 1<sup>st</sup>, 2003.

### **Objectives**

To evacuate a specific area endangered by an incident involving hazardous substances.

### **Responsible for the Procedure:**

The Commissioner of Police. The Royal Saint Lucia Police Force.

### **Steps of the Procedure.**

#### **A.- The Commissioner of Police shall:**

##### **Permanent.**

- 1.- Train Police personnel in HAZMAT response.
- 2.- Have Police personnel as members of the HAZMAT Sub-Committee for the planning and co-ordination of preparedness and response activities regarding evacuation in the case of an incident involving hazardous materials.
- 3.- Distribute this procedure between Police personnel member of the HAZMAT Sub-Committee and responsible for evacuation in the case of an incident involving hazardous materials.
- 4.- Train Police personnel in the conduction of evacuation of areas endangered by accidents involving hazardous materials.
- 5.- Plan and organise evacuation exercises.
- 6.- Revise and test this procedure periodically.

##### **In the case of an incident involving hazardous materials:**

- 7.- Once notified that an incident has occurred, ensure that Police personnel is sent to the site.
- 8.- Ensure the personnel contacts the OSC.
- 9.- Maintain communications with the Police personnel in the incident site.

- 10.- If considered necessary, go to the site to conduct evacuation if needed.
- 11.- If the OSC determines that evacuation is needed, ensure the Police personnel starts conducting the evacuation of the area.
- 12.- Ensure the Police personnel requests information from the OSC about:
  - a) Type of substance
  - b) Potential hazards
  - c) Risk to the population
  - d) Risk to Police response personnel
  - e) Public safety measures
  - f) Area (and radius) that needs to be evacuated.
- 13.- If needed, request assistance from NEMO for informing through the media about the immediate need for evacuation.
- 14.- Deploy vehicles and more personnel as needed to conduct the evacuation process.
- 15.- Ensure that the population does not return to the endangered area until NEMO and the OSC notify that there is no danger.
- 16.- Ensure that police personnel and vehicles establish traffic control in key points to speed up the evacuation process and to avoid vehicles to enter the area at risk.
- 17.- Ensure the Police maintains security and traffic control in the evacuated areas.
- 18.- Once receiving the notification from the NEMO that there is no more danger posed by the incident, give orders to the Police personnel to conduct the population back to the evacuated area.
- 19.- Ensure that normal car traffic activities are re-established.
- 20.- Revise and update this procedure after the event.

**Attachments.**

None.

## **Emergency Procedure HAZMAT-300- Control of the Incident.**

### **Version**

Version 0. October 1<sup>st</sup>, 2003.

### **Objectives**

To control and/or to eliminate the hazards to people, infrastructure and the environment posed by an accident involving hazardous materials.

### **Responsible for the Procedure:**

Fire Service (On Scene Commander Land)  
Police Marine Unit (On Scene Commander Sea)

### **Steps of the Procedure.**

#### **A.- The On Scene Commander shall:**

##### **Permanent.**

- 1.- Participate in the HAZMAT Sub-Committee meetings and inform the members about this procedure and its modifications and updating.
- 2.- Receive training on his responsibilities: first responders, incident command system, use of protection equipment; hazardous materials, etc.
- 3.- Participate in simulation exercises to test and update this procedure.
- 4.- Participate in the Sub-Committee works for developing a hazard materials inventory in Saint Lucia.
- 5.- Ensure that the emergency responders have enough and adequate protection equipment for the different classes of hazardous materials handled in Saint Lucia.
- 6.- Ensure that the emergency responders know how to use the protection equipment.
- 7.- Ensure that the protection equipment is always available and in good shape to be used in the case of an incident.
- 8.- Know how to respond to the different scenarios posed by the different hazard classes.
- 9.- Know what other resources (equipment, personnel, etc.) do the private companies handling hazardous materials have.

10.- Ensure that there is always co-ordination between the emergency responders from the government of Saint Lucia and those from private companies that handle hazardous materials in Saint Lucia.

Once in the site where an incident involving hazardous materials has occurred.

11.- Assess the incident according to Emergency Procedure HAZMAT-100 Incident Assessment.

12.- Isolate the area.

13.- Establish perimeters for hazard zones hot, warm and cold.

14.- Identify the type of substance:

- a) Identify the placard and the UN ID number.
- b) Identify the class and division of the hazardous material involved.
- c) Get from the responsible of the hazardous material transportation at the site if any (driver, importer, shipper, consignee, manager, captain, pilot, etc.) the Material Safety Data Sheet and the shipping documents.

15.- Establish contact with the polluter or person in charge of the vessel/vehicle/aircraft (shipper/consignee/manager/pilot/captain) in order to determine the cause of the incident and to ensure that the incident and/or its immediate dangerous consequences, if it is possible, are stopped.

16.- Identify the current scenario and the immediate possible scenarios according to the Hazardous Substance Class:

- a) Explosion
- b) Explosion and fire
- c) Explosion and possible fire
- d) Fire and possible explosion (including BLEVE)
- e) Leak of poisonous gas
- f) Leak and jet-fire
- g) Leak and possible fire
- h) Leak and possible explosion and possible fire
- i) Pool-fire.
- j) Spill and possible fire
- k) Etc.

17.- Identify the potential hazards and risks to health and property through:

- a) The ERG Guidebook and/or
- b) The Material Safety Data Sheet and/or
- c) The Shipping Papers and/or
- d) The current situation and the immediate scenario.

18.- Evaluate weather and topographical conditions and how can they impact in the incident and the response (rain, wind, humidity, terrain, nearby gutters, sewage, etc.).

19.- Determine if evacuation is needed and its extent.

20.- If evacuation is needed and after consulting with the Chairperson of the HAZMAT Sub-Committee and the Director of NEMO, inform the Police so evacuation is conducted immediately and inform them what area (s) and /or radius have to be evacuated.

21.- Inform the Chief Medical Officer about the risks to life and health so the MOH would take immediate precautions for future injured or to give adequate medical attention if there are already injured persons.

22.- Determine the control measures needed to stop the incident and to prevent/stop its effects:

- a) Extinguish fires when adequate
- b) Eliminate sources of fire
- c) Extinguish the hazardous material
- d) Eliminate/stop the release/spill of hazardous material
- e) Let the hazardous material extinguish
- f) Apply water to extinguish the hazardous material
- g) Apply water to cool vessel/tanks
- h) Re-accommodation of vessel/tank/container
- i) To our the hazardous material from one vessel/tank/container to another
- j) Confinement/Diversion/Detainment of hazardous material
- k) Collection of hazardous material
- l) Removal/re-location of hazardous material
- m) Dispersion of hazardous material
- n) Absorption of the hazardous material
- o) Dilution of the hazardous material.
- p) Neutralisation of the hazardous material
- q) Any other adequate measure recommended by the ERG and/or the shipper/consignee.

23.- Determine the adequate resources to control the incident.

- a) Enough trained personnel
- b) Enough and adequate protective clothing and equipment
- c) Enough and adequate vehicles
- d) Enough and adequate extinguishing agents
- e) Enough and adequate equipment and materials

24.- Determine if the incident can be controlled SAFELY by the responders under his/her command.

25.- Ensure that emergency response personnel in contact with the hazardous materials wear the adequate protective clothing and equipment.

26.- Determine if the incident can be controlled by:

- a) Governmental resources only
- b) Governmental resources and shipper/consignee's
- c) By shipper/consignee's only (Local and/or from overseas)
- d) By any other foreign, regional or international organisation.

27.- Determine if any other foreign, regional, international organisation must be contacted for information about the hazardous materials and/or the response and inform the Sub-Committee Chairperson and the Director of NEMO.

28.- Proceed to control safely the incident with own and others resources or allow other specialised personnel to control the hazardous material incident..

29.- Once the hazardous material poses no longer danger for the population, inform the Chairperson of the Sub-committee and the Director of NEMO.

30.- Establish contact with the Chief Medical Officer to ensure that all injured are being taken care of.

31.- Ensure that all wastes and debris are being/will be collected by the Shipper/consignee and/or the SLSWMA.

32.- In contact with the Sustainable Development and Environment Department and any other authorities as necessary, determine the extent of contamination, decontamination measures and determine the resources and time that would take to completely decontaminate the area.

33.- Consult with the Chairperson of the Sub-Committee and with the Director of NEMO about finishing the emergency and about further pending activities and responsibilities (task force) to bring back the area to normalcy.

END OF PROCEDURE.

**Attachments.**

1.- Emergency Response Guidebook. (Not shown. See Appendix 1 of this Plan.)

## **Emergency Procedure HAZMAT-400- Medical Attention.**

### **Version**

Version 0. October 1<sup>st</sup>, 2003.

### **Objectives**

To provide medical attention to workers, emergency responders and the population in general affected by the effects of an incident involving hazardous materials.

### **Responsible for the Procedure:**

Chief Medical Officer. Ministry of Health.

### **Steps of the Procedure.**

#### **A.-Chief Medical Officer shall:**

##### **Permanent.**

- 1.- Know this procedure and participate in the HAZMAT Sub-Committee meeting to plan the response and medical attention to injured in the case of incidents involving hazardous materials.
- 2.- Co-ordinate the Ministry of Health agencies, hospitals, responders and other personnel involved in medical attention to injured in incidents involving hazardous materials.
- 3.- Know the different classes of hazards posed by the different hazardous materials and their effects to life and health.
- 4.- Assess and improve the capacity of the health sector to respond in the case of an incident involving hazardous materials.
- 5.- Assess the capacity of the Health Sector to provide specific medical attention to specific kind of injuries/damage to health caused by specific classes of hazardous materials (explosion, fire, poisonous gases, corrosive materials, radioactive materials, etc.)
- 6.- Identify specific hospitals, equipment and personnel to provide specific medical attention to specific kind of injuries/damage to health caused by specific classes of hazardous materials (explosion, fire, poisonous gases, corrosive materials, radioactive materials, etc.)

7.- Identify other sources and organisations that could provide medical attention for accidents involving hazardous materials (regional, international and from other countries).

8.- Be trained and/or ensure that health responders from the Health Sector are trained in the response to accidents involving hazardous materials and in medical attention to people injured and exposed to hazardous materials.

9.- Participate in simulation exercises organised within the frame of the HAZMAT Sub-Committee. To test the HAZ MAT Plan and this and other emergency procedures.

10.- Plan, organise, execute and evaluate simulation exercises within the health sector to test the response and medical attention in the case of incidents involving hazardous materials.

When notified that an incident involving hazardous materials has occurred:

11.- Notify the health sector responders and the personnel and agencies that would have to provide medical attention so personnel, and equipment could be ready.

12.- Go to the site and contact the OSC.

13.- Establish a medical post within the Command Post where to co-ordinate health response, gather the injured and provide initial medical attention to them before they are dispatched or sent to medical attention centres.

14.- Assess the situation from the health risk point of view and establish contact with the OSC to discuss possible effects and threats of the accident to the life and health of the population and the measures to prevent and/respond to them including evacuation.

15.- Maintain permanent communication with the Ministry of Health to co-ordinate the health sector response and the adequate and optimal use of health sector resources during the emergency.

16.- If there are already any injured, ensure that they are given initial medical attention, transported and given adequate medical attention in health centres.

17.- Ensure at all times that the health sector response personnel is not at danger during the performance of their responsibilities in the site.

18.- Inform the OSC at all times about the number and type of injured, injured transported and the medical attention given.

19.- Once the OSC, in consultation with the HAZMAT Sub-Committee Chairperson and the Director of NEMO have determined that there is no longer any danger posed by the

incident and the emergency is finished, brief the OSC about all the actions taken from the health sector.

20.- Leave the Site.

21.- Prepare a final report including:

Description of the incident

Hazardous materials involved

Risk to life and health

Number and type of injured/affected by the accident and the hazardous substances

Response from the health sector and results

Further activities

Recommendations

22.- Send the report to the OSC to the HAZMAT Sub-Committee Chairperson and to the Director of NEMO.

23.- Revise, along with personnel from the health sector involved in the response, and improve these emergency procedure and the general response from the health sector.

END OF PROCEDURE

**Attachments.**

None

## **Emergency Procedure HAZMAT 500.- Emergency Operations Centre (National for Hazardous Materials Incidents)**

### **Version.**

Version 0, October 1<sup>st</sup>, 2003.

### **Objectives.**

To activate, operate and deactivate the National Emergency Operations Centre in the case of an incident involving hazardous materials in Saint Lucia whose magnitude demands the activation of the EOC in order to provide the OSC all the assistance needed for the response and the recovery.

### **Responsible for the Procedure.**

Main:

Director of NEMO

Secondary:

- a.- Deputy Director of NEMO
- b.- Permanent Secretary Prime Minister Office
- c.- Members of the EOC
- d.- NEMO's Secretary
- e.- Message Receiver
- f.- Situation Reporter
- g.- Damage Assessment Logger

### **Steps of the Procedure.**

#### **A.- The Director of NEMO shall:**

- 1.- Ensure the Emergency Operation Centre is in good shape and has all information needed at all times.
- 2.- Organise, plan, execute and evaluate simulation exercises for the activation and operation of the EOC.
- 3.- If it is determined, under the recommendation of the HAZMAT Subcommittee Chairperson, that due to the magnitude and effects of the incident the EOC has to be activated, inform the Prime Minister and proceed to activate the EOC.

4.- If the conditions and effects of the incident demand the activation of the EOC ensure that all EOC resources are checked:

- a) Communications
- b) Stationery
- c) Maps
- d) Situation report forms
- e) Message forms
- f) Emergency plan
- g) Emergency procedures
- h) Flip chart
- i) Computers
- j) Files
- k) Directories
- l) Food

5.- Proceed with the notification to the EOC members: Team # 1 and Team #2 as stated in Emergency Procedure HAZMAT 001.- Notification.

| Team # 1:                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Team # 2:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Director of NEMO.<br>Chairperson HAZMAT Sub-Committee<br>Permanent Secretary, External Affairs or nominee.<br>Chief Medical Officer<br>Police Commissioner<br>Chief Fire Officer<br>The Principal Information Officer<br>The Permanent Secretary, Ministry of Tourism<br>Amateur Radio and Citizen Band<br>Chairpersons of all the Disaster Committees<br>Red Cross Representative<br>SLASPA Representative<br>Stenographer/typist<br>After 12 hours Team 2 should be in the EOC. | Cabinet Secretary<br>Deputy Chairperson HAZMAT Sub-Committee<br>Permanent Secretary, Planning<br>Deputy National Disaster Coordinator<br>Deputy Permanent Secretary, External Affairs<br>Medical Officer Health<br>Deputy Police Commissioner<br>Deputy Chief Fire Officer<br>Representative GIS<br>Representative Ministry of Tourism<br>Amateur Radio and Citizen Band<br>Deputy Chairpersons of National Disaster Committees<br>Red Cross Representative<br>SLASPA Representative<br>Stenographer/Typist<br>After 12 hours team 1 should come back to the EOC |

Additionally, the following personnel will be in the EOC:

- 2 Policemen provided by the Police Force to provide security

- 1 or 2 (to be decided by Telecommunications Disaster Committee) Amateur Radio Operator provided by the Telecommunications Disaster Committee
- 3 Message Receivers (runners)
- Situation Reporter (s) per sector. Each EOC member (sector) should report every situation they are involved in. This situation considers one reporter per EOC sector.
- 1 Damage Assessment Logger

6.- Set up the EOC with the assistance of the Police and the Radio Operator.

7.- Ensure that there is permanent and clear communication between the EOC and the OSC in the Command Post at the incident site.

8- Receive and brief all EOC members at their arrival

9.- Ensure that EOC members finally set up the EOC.

10.- Co-ordinate all activities in the EOC. During his/her absence from the EOC, be substituted by the Deputy Director or by the Cabinet Secretary.

11.- Ensure, immediately after the EOC is activated, that the Transportation Committee provides aerial transportation for an incident assessment flight if needed.

12.- Participate in the initial damage assessment flight along with the Prime Minister of Saint Lucia, the Damage Assessment Committee and the Works/Rehabilitation/Reconstruction Committee Chairpersons.

13.- Brief, once in the EOC, the EOC members after the initial incident assessment flight and/or the initial assessment provided by the OSC.

14.- Start to receive incoming messages from the runner.

15.- Analyse and prioritise incoming messages. Give always priority to those that demand a response within a specific timeframe or to those that pose an immediate danger to life and property.

16.- Revise if the messages were given to the right persons by the runner, make corrections, if necessary, and demand action from other EOC members. Always contact and inform the main responsible for the response.

17.- Read aloud all incoming messages when first read.

18.- Request information from EOC members responsible for action to be taken

19.- Be informed verbally by main responsible members of action taken for specific messages.

20.- Revise continuously the incoming messages to give an adequate follow up and updating of information about actions taken.

21.- After 12 hours of EOC operation, with the assistance of all EOC members and NEMO personnel, ensure that Team # 2 is notified and called to the EOC.

22.- After 12 hours of operation request a report from all members of the EOC once both EOC teams are present.

23.- After 12 hours of activation of the EOC hand responsibilities over the Deputy Director NEMO after briefing him.

24.- After 24 hours of EOC activation return to the EOC and be briefed by the Deputy Director.

25.- After 24 hours of EOC activation request a report from all members of the EOC once both EOC teams are present.

26.- After 24 hours, request reports from all EOC members every 12 hours with the presence of both two teams.

27.- Along with the rest of the EOC, considering the disaster situation and after consulting with the Cabinet Secretary and/or the Prime Minister, take the decision of deactivating the EOC.

28.- After the EOC deactivation, based on the disaster situation and after consulting with the rest of the EOC members, decide about the activation of a 'Task Force' based in the NEMO headquarters to conduct the rehabilitation and reconstruction issues that have to be conducted.

29.- Co-ordinate the works of the Task Force.

**B.- The Deputy Director of NEMO shall:**

1.- Be always prepared to assist the Director of NEMO in the case of a disaster and activation of the EOC.

2.- Be trained to substitute the Director of NEMO in the EOC during his/her absence.

3.- Participate in EOC simulation exercises in which his/her performance in the EOC is tested.

4.- In the case of a hazardous materials incident, maintain communication at all times with NEMO Director in order to know the situation due to the hazardous materials incident.

- 5.- Be informed by NEMO Director that the EOC has to be activated.
- 6.- Assist the Director in the activation and set up of the EOC.
- 7.- After 12 hours of activated the EOC, go to the EOC and substitute the Director of NEMO as Co-ordinator of the EOC and its operations.
- 8.- Once arriving to the EOC, be briefed by NEMO's Director on the situation and pending issues
- 9.- After 12 hours of being in the EOC, be substituted by NEMO Director in the EOC
- 10.- Before leaving the EOC, brief NEMO's Director on the situation and pending issues.
- 11.- Repeat steps 6 to 10 until deactivation of EOC.
- 12.- Revise and update this procedure after every real event.

**C.- The Cabinet Secretary shall:**

- 1.- Know the Saint Lucia Hazardous Materials Response Plan and its Emergency Procedures
- 2.- Participate in simulation exercises that test the EOC and be informed of their evaluation.
- 3.- Be informed by NEMO Director that, due to the type and magnitude of the incident, there is the need of activating the EOC.
- 4.- Receive information from NEMO's Director about the situation.
- 5.- Inform the Prime Minister of Saint Lucia about the situation.
- 6.- Go to the EOC if needed and be prepared to go as part of team # 2 after the EOC has been activated for 12 hours.
- 7.- When arriving to the EOC, be briefed by the EOC Chairperson.
- 8.- Assist and advice the EOC chairperson in the co-ordination of the EOC.
- 9.- During NEMO's Director absence from the EOC, if so is agreed, and after the Director of NEMO has left the EOC after 12 hours of activation, act as chairperson of the EOC and co-ordinate all activities therein.

10.- Remain in the EOC and advise the Director of NEMO in any situation that demands his/her opinion/decision or the Prime Minister's.

11.- Contact and consult the Prime Minister as he/she thinks fit regarding any message and situation that demands the Prime Minister's decision.

12.- Leave the EOC after 12 hours and brief the Director of NEMO when he/she arrives to the EOC for the next shift.

**D.- The Members of the EOC shall:**

1.- Know the Saint Lucia Hazardous Materials Response Plan and its procedures and participate, when needed, in the planning process by revising and updating them regularly under NEMO's Director co-ordination and with the assistance of the HAZMAT Sub-Committee Chairperson for the particular case of hazardous materials incidents.

2.- Know their role in the EOC and determine their own needs regarding equipment, materials, stationary, information and others.

3.- Meet regularly with the National Committee's members in order to improve the plan and its procedures, identify roles and assign to the Committee members responsibilities regarding preparedness and response during hazardous materials incidents.

4.- Jointly with the National Committees' members define mechanisms of co-ordination and communication in the case of an emergency or a disaster, particularly from the Chairperson in the EOC to all the members and in the case of hazardous materials incidents.

5.- Once notified by NEMO Director that there's the possibility of activating the EOC due to the magnitude of an incident involving hazardous materials, ensure that everything they would need in the EOC is ready in the case of its activation

- a) Information
- b) Plan and procedures
- c) Formats
- d) Forms
- e) Maps
- f) Stationery
- g) Communications equipment
- h) Directories
- i) Inventories

6.- Ensure that the organisations/persons they would have to contact from the EOC are in stand-by and have everything ready in the case the EOC is activated.

7.- Once they are notified that the EOC has to be activated, go to the EOC.

8.- Before going to the EOC notify the organisations/persons they would have to contact from the EOC to be in place and to wait for instructions from the EOC.

9.- Arrive to the EOC with everything that they would need for operation:

- a) Information
- b) Plan and procedures
- c) Formats
- d) Forms
- e) Maps
- f) Stationery
- g) Communications equipment
- h) Directories
- i) Inventories

10.- Report to the Director of NEMO when arriving to the EOC

11.- Be briefed on the situation and pending issues

12.- Take the seat or place destined for him/her in the EOC

13.- Prepare dips (special, with boxes or with folders) for his/her incoming, pending and outgoing messages.

14.- Respond to every message that demands attention

15.- Communicate with other members in the EOC for joint actions that have to be taken or for gathering of information.

16.- Write down in the log sheet the action taken and return it to the chairperson only when the action is finished.

17.- Establish permanent communication with the members of their committee/ministry/organisation that are taking action in sectoral EOC's, in the Ministries, in the field or in their offices.

18.- Beside returning the messages with the written action taken, read the message and the action taken aloud so the chairperson and the rest of the EOC would know about it.

19.- Present a status on the situation every 12 hours to the chairperson and to the whole EOC.

20.- In the case of a visit of the Prime Minister to the EOC, or whenever a report is requested by the Prime Minister or by the EOC chairperson, present a full situation report concerning the responsibilities of his/her committee /ministry/ organisation, including, damage assessment, actions taken and results, particularly the situation in the incident site as informed by the OSC and/or the Sub-Committee.

- 21.- Brief his/her substitute every time before leaving the EOC in the change of shifts.
- 22.- Be briefed every time arriving to the EOC.
- 23.- At all times, provide information and resources, as possible, to the EOC members.
- 24.- Provide information and opinion for the decision, when needed, about the deactivation of the EOC.
- 25.- After the deactivation of the EOC, notify the members of his/her organisation/ Ministry/ about it.
- 26.- Participate as a member of the 'Task Force' if it is needed.

**E.- NEMO's Secretary shall:**

- 1.- Assist the Director and the Deputy Director of NEMO to ensure that the EOC is kept in good shape.
- 2.- Assist the Director and the Deputy Director of NEMO to ensure that the EOC has all equipment, information and materials needed for its operations if it has to be activated.
  - a) Communications
  - b) Stationery
  - c) Maps
  - d) Situation report forms
  - e) Message forms
  - f) Emergency plan
  - g) Emergency procedures
  - h) Flip chart
  - i) Computers
  - j) Files
  - k) Directories
  - l) Food
- 3.- Once the EOC is activated, go to the EOC.
- 4.- Report in the EOC to the Director of NEMO.
- 5.- Be in charge of the management of internal EOC supplies: food, stationery, photocopies, etc., and others needed by the EOC.
- 6.- Provide the EOC chairperson with information needed from NEMO for the operations of the EOC: directories, files, etc.
- 7.- Assist the Radio Operator with the receipt and record of messages in the log sheets.

- 8.- Assist the Runner with the copying and distribution of messages to the EOC members
- 9.- Assist the EOC members with turning the log sheets to the EOC chairperson.
- 10.- Assist the Director and Deputy Director in any other need.
- 11.- Assist the Director and the Deputy Director in the deactivation of the EOC.
- 12.- After 12 hours leave EOC and return 12 hours later.

**F.- The Message Receiver (Runner) shall:**

- 1.- Revise and improve this procedure and the log sheet
- 2.- Once notified that the EOC is activated, go to the EOC.
- 3.- Ensure that enough copies of the log sheet are available.
- 4.- Once in the EOC report to the Director.
- 5.- Contact the Radio Operator
- 6.- Find out about any messages that have been received in the EOC and their status.
- 7.- Log the messages and turn them if they have not been turned to the EOC members.
- 8.- Be informed about every message that is received in the EOC
- 9.- Log every message received in the EOC in the log sheet form
- 10.- Give copies of the log sheet for action to be taken to:
  - a) Chairperson
  - b) Members of the EOC
    1. Main EOC member responsible for action
    2. Secondary EOC members responsible for action
    3. Other EOC members, for their information.
    4. Situation Reporter (shares with damage assessment logger)
- 11.- If the message involves information about damage, always give a copy to the damage assessment chairperson and one to the damage logger.
- 12.- Shout: 'Incoming!' every time that he/she delivers a message to the EOC chairperson or to any EOC member.

13.- Assist the EOC chairperson to have a sequential record of all log sheets including incoming messages and action taken by EOC members.

14.- After the EOC is deactivated, revise the log sheets and deliver them to the chairperson.

**F.- The Situation Reporter shall:**

1.- Revise and improve the situation report sheets regularly

2.- Once he has received the notification that the EOC is activated, go to the EOC

3.- Once in the EOC report to the EOC chairperson.

4.- Assist in the EOC set up and ensure that the situation report sheets are hung in the wall so everybody can see them and follow the events and actions taken.

5.- Prepare dips (with boxes or with folders) for incoming, pending and outgoing (or logged) messages.

6.- Ask the EOC Chairperson or a specific member of the EOC about any doubts about any message and/or action taken.

7.- After 12 hours in the EOC leave after briefing the substitute,

8.- Return to the EOC twelve hours later.

**G.- The Damage Assessment Logger shall:**

1.- Revise and improve the situation report sheets regularly.

2.- Once he has received the notification that the EOC is activated, go to the EOC

3.- Once in the EOC report to the EOC chairperson.

4.- Assist in the EOC set up and ensure that the situation report sheets are hung in the wall so everybody can see them and follow the events and actions taken.

5.- Prepare dips (with boxes or with folders) for incoming, pending and outgoing (or logged) messages.

6.- Work closely with the Situation Reporter and share log sheets.

7.- Ask the EOC Chairperson or a specific member of the EOC about any doubts about any message and/or action taken.

8.- After 12 hours in the EOC leave after briefing the substitute,

9.- Return to the EOC twelve hours later.

END OF PROCEDURE

**Attachments:**

1.- Log Sheet Form (messages)

2.- Situation report formats (not shown)

**HAZMAT- 500 Emergency Operations Centre (HAZ MAT) Attachment 1: Log Sheet.**

**LOG SHEET \_\_\_\_\_ NUMBER \_\_\_\_\_**

**INCIDENT NO.** \_\_\_\_\_

**SUMMARY OF INCIDENT:**

\_\_\_\_\_

\_\_\_\_\_

**NORMAL \_\_\_\_\_ URGENT \_\_\_\_\_ DEADLINE \_\_\_\_\_**  
**RESPONSE\_GIVEN \_\_\_\_\_**

\_\_\_\_\_

\_\_\_\_\_

**TIME RECEIVED**

**(EOC) \_\_\_\_\_**

**TIME OF ACTION (EOC**

**MEMBER) \_\_\_\_\_**

**COMPLETION TIME (RETURNED TO EOC**

**CHAIRPERSON) \_\_\_\_\_**

Distribution List

| EOC Member                                   | Primary Action | Secondary Action | Only for Information | Other |
|----------------------------------------------|----------------|------------------|----------------------|-------|
| <b>Cabinet Secretary</b>                     |                |                  |                      |       |
| <b>EOC Chairperson (NEMO)</b>                |                |                  |                      |       |
| <b>Situation Reporter</b>                    |                |                  |                      |       |
| <b>Damage Assessment Logger</b>              |                |                  |                      |       |
| <b>NEMO Secretary</b>                        |                |                  |                      |       |
| <b>Radio operator</b>                        |                |                  |                      |       |
| <b>HAZMAT Sub-Committee Chairperson</b>      |                |                  |                      |       |
| <b>Telecommunications Committee</b>          |                |                  |                      |       |
| <b>Transportation Committee</b>              |                |                  |                      |       |
| <b>Chief Medical Officer</b>                 |                |                  |                      |       |
| <b>Welfare Committee</b>                     |                |                  |                      |       |
| <b>Damage and Needs Assessment Committee</b> |                |                  |                      |       |
| <b>Supply Management Committee</b>           |                |                  |                      |       |
| <b>Works and Rehabilitation Committee</b>    |                |                  |                      |       |
| <b>Shelter Management Committee</b>          |                |                  |                      |       |
| <b>Ministry of Tourism/CMU</b>               |                |                  |                      |       |
| <b>Ministry of External Affairs</b>          |                |                  |                      |       |
| <b>Royal Saint Lucia Police Force</b>        |                |                  |                      |       |
| <b>Saint Lucia Fire Service</b>              |                |                  |                      |       |
| <b>Government Information Systems GIS</b>    |                |                  |                      |       |
| <b>SLASPA</b>                                |                |                  |                      |       |
| <b>Comptroller of Customs</b>                |                |                  |                      |       |

## **Emergency Procedure HAZMAT 600.- Damage Assessment.**

### **Version:**

Version 0, October 1<sup>st</sup>, 2003.

### **Objectives**

To assess the damage caused by an accident involving hazardous materials in order to determine the measures and activities for recovery and their total cost.

### **Responsible for the Procedure:**

Fire Service (OSC Land) .  
Police Maritime Unit (OSC Sea).

### **Steps of the Procedure:**

#### **The On Scene Commander Shall:**

##### **Permanent.**

- 1.- Know this procedure, revise it and improve it within the HAZ MAT Sub-Committee.
- 2.- Discuss and agree with the Sub-Committee members on the elements whose damage has to be assessed in incidents involving hazardous materials.
- 3.- Prepare formats for damage assessment and agree on their use with the rest of the Sub-Committee members.
- 4.- Agree with the other Sub-Committee members on the mechanisms and flow of damage assessment information during an incident involving hazardous materials.

##### **When notified that an incident involving hazardous materials has occurred.**

- 5.- Assess the incident according to Emergency Procedure HAZMAT-100 Incident Assessment.
- 6.- Control the incident according to Emergency procedure HAZMAT- 300 Control of the Incident.

##### **Once the hazardous material has been controlled and there is no more danger.**

- 7.- Request a final damage report from the Shipper/Consignee.

- 8.- Request a final damage report from the Chief Fisheries Officer.
- 9.- Request a final damage report from the Chief Medical Officer.
- 10.- Request a final damage report from the Police.
- 11.- Request a final damage report from the Sustainable Development and Environment Unit.
- 12.- Request a final damage report from the Saint Lucia Solid Waste Management Agency.
- 13.- Request a final damage report from SLASPA.
- 14.- Request a final damage report from CEHI.
- 15.- If there is damage to infrastructure, request, through the Director of NEMO, a damage assessment report to be prepared by the Ministry of Works or by the Damage Assessment National Disaster Committee.
- 16.- Prepare, or ensure someone under his/her command prepares, a damage assessment report from the incident including information from the rest of the responders.
- 17.- Send a copy of the report to the Sub-Committee Chairperson and one copy to the Director of NEMO. The report must include information provided by the rest of the responding agencies and must include, at least:
  - a) Description of the incident
  - b) Type and amount of hazardous materials involved
  - c) Damage during response
  - d) Damage during evacuation
  - e) Damage to life and health
  - f) Damage to fisheries
  - g) Damage to the environment
  - h) Damage to infrastructure and estimated cost.
  - i) Estimated cost of the above plus cost of decontamination, final disposal and cost of emergency response resources.
  - j) Total estimated cost.
- 18.- Revise this procedure and the methodology for assessing damage.

END OF PROCEDURE

## **Emergency Procedure HAZMAT 700.- Public Information.**

### **Version:**

Version 0, October 1<sup>st</sup>, 2003.

### **Objectives**

To disseminate information, in English and/or Creole, for the people of Saint Lucia and, when needed, for the region and/or rest of the world, through the media or through the PM or any other governmental official authorised to do so, to report about the impact of an accident involving hazardous materials in Saint Lucia, damage caused, measures taken by the government and results, and measures to be taken by the population to protect their lives and property.

### **Responsible for the Procedure:**

#### **Main:**

The Director of Information Services. The Government Information Services (SLU-GIS).

#### **Secondary:**

NEMO Director  
HAZMAT Sub-Committee Chairperson.  
On Scene Commander.

### **Steps of the Procedure.**

#### **A.- The Director of Information Services Shall:**

- 1.- Revise and update this procedure and its attachments at least once a year and always after a simulation exercise and a real event.
- 2.- Be assisted at all times by the Principal Information Officer SLU-GIS in all the steps of this procedure.
- 3.- Design, with the assistance and input of NEMO and the HAZMAT Sub-Committee, produce, conduct and evaluate campaigns to increase the public awareness about hazardous materials incidents in Saint Lucia and about the measures that have to be taken to protect their lives and property.
- 4.- Establish and improve, with NEMO, the HAZMAT Sub-Committee Chairperson and the media, mechanisms for the dissemination of governmental information in the case of emergency and disasters due to hazardous materials incidents.

5.- Be notified by NEMO that a hazardous materials incident has occurred and that information is available for the SLU-GIS.

6.- Be informed by NEMO, and only by NEMO about where the hazardous materials incident has occurred and about who is to be interviewed.

7.- Ensure that NEMO has already contacted the person that will be interviewed.

8.- Inform the person interviewed and inform NEMO about the time for the broadcasting of the interview and if any other written and/or oral information is needed.

9.- Receive from NEMO, or by personnel approved by NEMO the information about the incident that will be released through the media.

10.- Be informed by NEMO if the EOC is activated due to the magnitude of the incident; if it is, go to the EOC; if it is not go to point 25.

11.-Report to the EOC Chairperson.

12.- Assist in setting up the EOC.

13.- Ensure that there is communication between the EOC and the Media. Check the emergency broadcast system: check the emergency telephone hotlines.

14.- Immediately after the incident assessment, prepare an initial report to be sent to the media including: hazard substances characteristics, initial damage assessment, initial response and results and recommendations for the population.

15.- If necessary and if recommended and approved by the EOC, send SLU-GIS personnel to the site of the hazardous materials incident. Always report to, and be under the command of, the OSC at the Command Post.

16.- With information from the EOC (if activated), prepare and update a report (media release) every 6 hours after the initial report.

17.- Prepare the text of the Prime Minister's Address to the Nation when requested by the EOC or by the Prime Minister himself.

18.- Maintain contact with the members of the Media. Request updated information from the EOC Chairperson, NEMO, the HAZMAT Sub-Committee Chairperson, OSC and/or the rest of the EOC members (if activated) as needed and always under the approval of NEMO.

19.- Get the approval and consensus of the EOC before the broadcast of every six-hour report and before sending the PM's address to the Nation.

- 20.- Inform the EOC about any special request of information from the Media.
- 21.- After 12 hours in the EOC leave the EOC and be substituted by the Deputy Chairperson of the Information Committee.
- 22.- Return 12 hours later to the EOC and substitute the Deputy Chairperson.
- 23.- Always brief and be briefed by the Deputy Chairperson when arriving or leaving the EOC in every 12-hour shift.
- 24.- After the EOC is deactivated, prepare a final report to be broadcasted. Send a copy to NEMO to be included in the Plan.
- 25.- Receive from NEMO a final report of the incident and the response given.
- 26.- Revise and update this procedure.

**B.- The Director of NEMO shall:**

- 1.- Call SLU-GIS when it has been confirmed that an hazardous materials incident has occurred and indicate the location and characteristics.
- 2.- Indicate SLU-GIS who is the authorised person to be interviewed on the hazardous materials incident site.
- 3.- Maintain contact with the OSC and the HAZMAT Sub-Committee Chairperson and inform them that SLU-GIS will go to the site to gather information and to interview either of them or both.
- 4.- If the EOC is activated, receive from SLU-GIS a media release every 6 hours, for discussion and approval by the EOC and release through the Media.
- 5.- Receive, revise along with the rest of the EOC members, and approve the initial report prepared by the SLU-GIS to be presented to the Prime Minister.

**C.- The HAZMAT Sub-Committee Chairperson shall:**

- 1.- Receive notification from NEMO that SLU-GIS will go to the site.
- 2.- Agree with the OSC about who will be interviewed and about the information that is to be given to SLU-GIS to be released through the media to the public.
- 3.- Ensure, along with the OSC, that no interview is given by unauthorised person on the hazardous materials incident site.

4.- If the EOC is activated send information as needed and requested to the EOC for the preparation of media releases.

**D.- The On Scene Commander shall:**

1.- Receive notification from NEMO or from the HAZMAT Sub-Committee Chairperson that SLU-GIS will go to the site.

2.- Agree with the HAZMAT Sub-Committee Chairperson about who will be interviewed and about the information that is to be given, with the approval of NEMO, to SLU-GIS to be released through the media to the public.

3.- Ensure, along with the HAZMAT Sub-Committee Chairperson, that no interview is given by unauthorised person on the hazardous materials incident site.

4.- If the EOC is activated send information as needed and requested to the EOC for the preparation of Media releases.

END OF PROCEDURE

**Attachments .**

None.

## **Emergency Procedure HAZMAT 800.- Clean-Up and Final Disposal.**

### **Version:**

Version 0, October 1<sup>st</sup>, 2003.

### **Objectives**

To ensure that site of an incident involving hazardous materials is cleaned-up from debris and hazardous materials until the complete decontamination and recovery of the site and to dispose adequately of any hazardous materials and any wastes that resulted from the accident.

### **Responsible for the Procedure:**

#### **Main:**

The Saint Lucia Solid Waste Management Authority. (SLSWMA).

### **Steps of the Procedure.**

#### **A.- The Saint Lucia Solid Waste Management Authority shall:**

Permanent.

- 1.- Participate in the meetings of the HAZMAT Sub-Committee to revise and improve this procedure.
- 2.- Participate in training regarding hazardous materials response.
- 3.- Participate in simulation exercises to test this plan and this emergency procedure.
- 4.- Identify specific materials/wastes that would require handling, transportation and final disposal after an accident involving hazardous materials (hazardous materials, recipients, vessels, car parts, debris, earth, vegetation, sand, water, packages, etc.).
- 5.- Identify specific needs required for handling contaminated debris, material and wastes from incidents involving hazardous materials (collection, transport, storage and final disposal).
- 6.- Discuss with the HAZMAT Sub-Committee the need for specific equipment, training, transportation, storage and final disposal facilities for contaminated materials and wastes resulting from incidents involving hazardous materials.

7.- Ensure the Sub-Committee and its members (government agencies and private companies handling hazardous materials) have the resources to handle and dispose of contaminated wastes resulting from incidents involving hazardous materials.

When notified that an incident involving hazardous materials has occurred,

8.- Go to the site and report to the OSC.

9.- Identify the type and amount of wastes and contaminated material that would need specific handling and final disposal.

10.- Contact the SDEU to assess and estimate the damage to the environment and the type and amount of contaminated material and natural resources (water, earth, sand, vegetation, flora, fauna, etc.) that would need special management and final disposal.

11.- Contact the shipper/consignee directly or through the OSC to find out about their resources and capacity to manage the wastes and contaminated material result of the incident.

12.- Inform the OSC about the type and amount of wastes and contaminated and non-contaminated material that would need to be cleaned-up and/or disposed of. Inform the OSC about the resources and the time required to do so.

13.- Give recommendations to the OSC about the clean up and final disposal of contaminated and non-contaminated material.

14.- Along with the shipper/consignee's and other agencies' resources, provide resources for the clean-up and final disposal of contaminated and non-contaminated material until the site is completely decontaminated and free from wastes and debris.

END OF PROCEDURE.

**Attachments.**

None.

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