



Hazardous Materials Management Guidelines

Applicability

These guidelines apply to facilities and activities involving the transportation, production, handling, storage, and disposal of hazardous materials.

Sponsors of MIGA-guaranteed projects that involve hazardous materials are required to develop and implement a Hazardous Materials Management Program as described in these guidelines. Sponsors are responsible for complying with the provisions in these guidelines whether they manage hazardous materials themselves or through contractors.

Definitions

Hazardous materials (Hazmats): are those materials that represent a risk to property, the natural or human environment or human health because of their physical and/or chemical characteristics. Materials (including mixtures and solutions) subject to these guidelines can be classified according to the hazard they present, as follows:

- Explosives
- Toxic or flammable gases
- Flammable liquids
- Flammable solids
- Oxidizing substances
- Toxic and infectious substances
- Radioactive material
- Corrosive substances
- Miscellaneous dangerous materials.

Threshold limit: The quantity of a hazardous material reach a threshold limit when its effect increases in both incidence and severity with increasing quantity of the material and are not recognized below a threshold quantity.

Hazardous materials above threshold limit quantities require special treatment to prevent accidents such as fire, explosions, leaks or spills, and to respond to emergencies should any of these events take place.

Key Elements

The following box summarizes the key elements of these guidelines:

Screening. Determine the characteristics and threshold quantities of each hazardous material.

- Hazardous Materials Management Program, including the following aspects:
 - Management Actions: training, worker health and safety, record keeping and reporting.
 - Preventive Plans: transportation plan, processes and operations plan, hazardous wastes plan.
 - Emergency Preparedness and Response Plan: emergency response, medical assistance, communications, incident reporting.
- Community Involvement and Awareness.

Requirements

Sponsors must fulfill the following three requirements as described in further detail in these guidelines and the attached Guidance Notes A, B and C as appropriate:

- (1) Screen the type and quantity of Hazmats involved in its operations. The results of the screening will determine the depth and the breadth of step number 2.
- (2) Prepare a Hazards Materials Management Program and, if applicable, one or more of the plans described in the attached Guidance Notes.
- (3) Undertake Community Involvement and Awareness activities (which can be incorporated into the Hazardous Materials Management Program)

For further guidance in meeting these requirements, Sponsors should refer to materials and websites listed in Appendix A and the manuals listed in Appendix B.

Screening

The preparation of a Hazardous Materials Management Program requires an initial screening to determine the type and quantity of Hazmat involved at various stages of a project, and to identify the necessary procedures to manage them properly.

Screening is conducted for each Hazmat by using tables published by international organizations and national governments, some of which are available in the Internet. Links are provided in Appendix A at the end of this document as a reference.

As part of these guidelines, a Sponsor must determine the threshold quantities of each hazardous material used in the project using internationally accepted tables, such as the following¹:

- Processes and operations: US Environmental Protection Agency. *Protection of Environment* (Title 40 CFR Parts 300-399 and 700 to 789).
- Transportation: United Nations. *Transport of Dangerous Goods - Model Regulations*. 11th Revised Edition. Geneva 1999

¹ On a case by case basis MIGA may accept national standards deemed to be equivalent to internationally accepted standards.

- Hazardous wastes: US Environmental Protection Agency. *Protection of Environment* (Title 40 CFR Parts 260).

Such lists may include the following: substance code, name and description, class or division and/or threshold quantity. Using this information, the Sponsor will produce a summary table showing every Hazmat, the quantity used per month, which characteristic makes it hazardous (e.g. flammability, toxicity), its hazard level (low to high), and the threshold limit quantity for each Hazmat. The summary table must also contain cross references to the Hazmat management procedures to be used in each case.

The screening will produce one of the following outcomes, as per the summary table described above:

i) If the Hazmat involved is present in quantities below threshold limits, as defined by the relevant list used, the Sponsor must develop a Hazardous Materials Management Program containing the minimum requirements for the Hazardous Materials Management Program as described below.

ii) If the Hazmat involved is present in quantities equal to or above threshold limits, as defined by the relevant list used, the Sponsor must develop a Hazardous Materials Management Program including the minimum requirements for the Hazardous Materials Management Program as described below and at least one or more of the following plans as appropriate, as outlined in the attached Guidance Notes²:

- Hazmats Risk Management Plan (see Guidance Note A)
- Hazmats Transportation Plan (see Guidance Note B)
- Hazmats Waste Management Plan (see Guidance Note C).

² In addition to the Guidance Notes included as part of these guidelines which set out the minimum requirements that must be covered in each plan, IFC has also produced manuals (listed in Appendix B) for the preparation of individual hazardous materials management plans. These manuals contain detailed information and guidance about screening, management actions, preventive measures and emergency preparedness and response. They will be available through the IFC website.

Hazardous Materials Management Program

Sponsors of MIGA-guaranteed projects that involve hazardous materials are required to develop and implement a Hazardous Materials Management Program. This program must include the relevant sections for Hazmats below the threshold limit and must also include, in a coherent manner, the appropriate Hazmat management plans for Hazmats above the threshold limits.

A Hazardous Materials Management Program includes the following components: management actions, prevention measures and an emergency preparedness and response plan.

Management Actions

Whenever a hazardous material is used in a process or operation (including transportation), regardless of the quantities handled, the implementation of the following actions is required:

- *Worker health and safety.* All employees working with Hazmats should be provided with suitable personal protection equipment (footwear, masks, protective clothing and goggles in appropriate areas), emergency eyewash and showers, ventilation systems, sanitary facilities, pre-employment and scheduled periodic medical examinations (refer to appropriate occupational health and safety provisions such as NIOSH's³ Threshold Limit Values) Periodic monitoring of workplace air contaminants relative to worker tasks and the plant's operations is required. Workplace air quality monitoring equipment should be well maintained.
- *Record keeping and reporting.* Measuring and monitoring records should be kept accessible to employees and their representatives. Monitoring data should include: (i) marking of the hazardous chemicals; (ii) location, nature, dimensions of workplace monitored; (iii) type and duration of employees' exposure; (iv) sources of airborne emissions, (v) relevant background information for emissions (engineering controls, ventilation, weather conditions, etc.); (vi) sampling methods used;

³ NIOSH stands for National Institute for Occupational Health and Safety, a US Federal Agency.

(vii) names of persons doing the sampling, date, and exact time of sampling.

- *Training.* Sponsors are responsible for assessing the organization's capabilities on Hazmat management. All employees working with Hazmats should be trained in hazard identification, safety operating procedures, appropriate materials handling procedures, safe work practices, basic emergency procedures, and special hazards unique to their jobs. Training should incorporate information from Material Safety Data Sheets⁴ (MSDSs) for Hazmats being handled. MSDSs should be readily accessible to employees in their local language.

Periodic reviews of Hazmat management procedures should also be reported and filed. Accident and incident investigation reports should be maintained and kept in file for a period of at least five years.

Prevention Measures

When quantities of Hazmats are involved below threshold limits, the following provisions must at a minimum be implemented. The aim of prevention measures is to develop and implement procedures that will prevent accidents involving Hazmats and integrate these procedures in the day-to-day business activities.

- *Processes and Operations.* The Sponsor should explore the elimination or substitution of Hazmats, whenever possible, through design modifications, engineering controls, and enhanced technical procedures.

The sponsor must prepare a prevention plan which should cover the following: (i) written process safety parameters (i.e., hazards of the chemical substances, safety equipment specifications, safe operation ranges for temperature, pressure and other applicable parameters, evaluation of the consequences of deviations, etc.); (ii) written operating procedures; and (iii) compliance audit procedures.

⁴ MSDSs are produced by Hazmat manufacturers and therefore they are not available for Hazmats produced *in situ* or, indeed, for hazardous wastes.

- *Transportation of Hazmats.* The sponsors must prepare transportation Procedures that are consistent with internationally acceptable standards, such as the UN Model Regulations⁵. Transportation of Hazmats must, at a minimum, cover the following: (i) ensuring that the nature, integrity and protection of packaging and containers used for transport are appropriate for the kind and quantity of hazardous material involved; (ii) ensuring adequate transport vehicle specifications; (iii) informing employees involved in the transportation and training them as appropriate to handle normal operations and emergencies; (iv) using labeling and placarding (external signs in transport vehicles) as required; and (v) providing the necessary means for emergency response.
- *Hazardous Wastes Handling and Disposal.* Hazardous wastes are generated by a wide array of industries and commercial activities. Adequate measures should be taken for the safe accumulation, labeling, handling, transport, treatment and disposal of hazardous wastes to avoid contamination of the physical and living environment, or expose human populations to pathogenic, carcinogenic or other agents. Hazardous wastes may, under certain circumstances, be recycled or reused in the same or other facility subject to adequate controls.

The Sponsor must use internationally accepted procedures to manage hazardous wastes, which adequately consider the following aspects: (i) wastes collection procedures; (ii) storage methods and location including location alternatives considered, if any; (iii) options considered for final disposal or destruction; (iv) environmental impacts from the option selected including by-products (i.e., incineration ashes), (v) detailed information about the mitigation measures to be implemented and (vi) monitoring plan program to assess impacts of the option chosen, as needed.

⁵ : United Nations. Transport of Dangerous Goods - Model Regulations. 11th Revised Edition. Geneva 1999

Emergency Preparedness and Response Plan

Proper transportation, handling, storage, processing, treatment and disposal of Hazmats should be undertaken by implementing measures to minimize their impact on the environment and human health and by developing emergency response actions in case of an accident.

The sponsor must prepare an Emergency Preparedness and Response Plan, which should cover the following: (i) preparedness and response principles; (ii) communications with local authorities and emergency response bodies (fire department, police, ambulance service, etc.); (iii) medical aspects of emergency preparedness and response including first aid (iv) emergency response (spill containment, toxic releases, fire fighting, explosion response, etc); (v) incident reporting and investigation, including record keeping; and (vi) emergency response training. For Hazmats in quantities above the threshold limit a more comprehensive plan is required as per the attached Guidance Notes.

Community Involvement and Awareness

When Hazmats are in use, the project sponsor is responsible for informing the potentially affected community (e.g. people around the facility, people on transport route), and providing a means for public feedback. The sponsors community involvement activities must include:

- Providing general information on the nature, extent and potential off-site effects on human health or the environment, including property, or possible major accidents at planned or existing hazardous installations to the potentially effected public (e.g. in writing or through meetings).
- Providing specific and timely information, both as a routine practice and in the event of an accident, on the appropriate behavior and safety measures to be adopted.
- Providing access to other available information needed to understand the nature of the possible effect of an accident and to be able to contribute effectively, as appropriate, to decisions concerning hazardous installations and the development of community emergency preparedness plans.

- Record keeping of complaints and responses.

Guidance Note A: Outline of a Hazardous Materials Risk Management Plan.

Sponsors of MIGA-guaranteed projects involving production, handling, and storage of Hazmats at or above threshold limits must prepare a Hazmats Risk Management Plan. This guidance note provides an outline of the plan.⁶ For further information and guidance, please refer to International Finance Corporation (IFC) Hazmats Risk Management Manual.

Hazard Assessment

On the basis of the outcomes of the initial screening Hazmats in quantities above the threshold limits require more rigorous handling procedures.

The potential hazard involved in the processing and operation involving Hazmats is determined by reviewing: i) the project's accidents history, if applicable; ii) potential impacts as a result of an accident in the worst case situation; and iii) potential impacts as a result of an accident in a more realistic scenario.

Management Actions

- *Management of Change.* These procedures should address (i) the technical basis for changes in processes and operations; (ii) the impact of changes on health and safety; (iii) modification to operating procedures; (iv) authorization requirements; (v) employees affected; and (vi) training needs.
- *Compliance Audit.* A compliance audit is a way to evaluate compliance with the prevention program requirements for each process. A compliance audit covering each element of the prevention measures (see below) should be conducted at least every three years. The Sponsor must prepare a compliance audit program that includes (i) preparation of a report of the findings; (ii) determination and documentation of the appropriate response to each finding; and (iii) documentation that any deficiency has been corrected.

- *Incident Investigation.* Incidents can provide valuable information about site hazards and the steps needed to prevent accidental releases. The sponsor must prepare incident investigation procedures to (i) initiate the investigation promptly; (ii) summarize the investigation in a report; (iii) address the report findings and recommendations; and (iv) review the report with staff and contractors.
- *Employee Participation.* The sponsor must prepare a written plan of action regarding the implementation of active employee participation in the prevention of accidents be developed.
- *Contractors.* The sponsor must prepare procedures to ensure that (i) the contractor is provided with safety performance procedures and safety and hazard information; (ii) contractors observe safety practices; and (iv) verify that the contractor acts responsibly. The sponsor must also develop additional procedures to ensure the contractors will (i) ensure appropriate training for their employees; (ii) ensure their employees know process hazards and applicable emergency actions; (iii) prepare and submit training records; and (iv) inform employees about the hazards presented by their work.
- *Training.* Good training programs on operating procedures will provide the employees with the information needed to understand how to operate safely and why safe operations are needed.

The sponsor must prepare a training program that includes (i) the list of employees to be trained; (ii) the specific training objectives; (iii) mechanisms to achieve the objectives (i.e. hands on, workshops, videos, etc.); (iv) means to determine whether the training program is working; and (v) training procedures for new hires and refreshers.

The sponsor should report on the date of the most recent review or revision to the training program.

⁶ IFC. *Hazardous Materials Risk Management Manual*. Washington, D.C. December 2000.

Preventive Measures

The purpose of these measures is to ensure that the safety-related aspects of the process and equipment are considered, the limits to be placed on the operations are well known, and accepted standards and codes are adopted where they apply.

- *Process Safety Information.* For each Hazmat included in published lists (see Screening) the sponsor must prepare procedures that include: (i) compilation of material safety data sheets; (ii) identification of maximum intended inventories and safe upper/lower parameters; (iii) documentation of equipment specifications and of codes and standards used to design, build and operate the process.
- *Process Hazard Analysis.* The hazard review is the key to understanding how to operate safely on a continuous basis. The sponsor must conduct at hazard analysis (i) to identify the hazards associated with its processes and the listed substances; (ii) using guidelines to conduct the review (e.g. checklists, HAZOP⁷, FMEA⁸, fault-tree analysis); (iii) document results and resolve problems, and (iv) update the hazards review.
- *Operating Procedures.* The sponsor must prepare procedures for the use of Hazmats during each operation phase including initial startup, normal operations, temporary operations, emergency shutdown, emergency operations, normal shutdown, start up following a normal or emergency shutdown or major change. Other procedures to be developed include impacts of deviations, steps to avoid deviations, prevention of chemical exposure, exposure control measures, and equipment inspections.
- *Mechanical Integrity.* The sponsor must prepare procedures to maintain the integrity of process equipment. The procedures should be developed for pressure vessels and storage tanks, piping systems, relief and vent systems and devices, emergency shutdown systems, controls, and pumps. This requirement includes: (i) developing written procedures;

(ii) conducting training; (iii) developing inspection and testing procedures; (iv) identifying and correcting equipment deficiencies; and (v) establishing a quality assurance program for equipment, maintenance materials, and spare parts.

- *Hot Work Permit.* The sponsor must prepare procedures to issue a hot work permit, identify the object on which the hot work will be conducted, and implement emergency preparedness and response measures.
- *Pre-Start Review.* The sponsor must prepare procedures to carry out pre-start reviews when a modification is significant enough to require a change in safety information under the management of change procedure. The procedures should cover (i) confirmation that the new or modified construction and/or equipment meet design specifications; (ii) ensuring that procedures for safety, operation, maintenance, and emergency are adequate; (iii) performing a process hazard assessment and resolving or implemented recommendations for new process; and (iv) ensuring that training for all affected employees is being conducted

Emergency Preparedness and Response Plan

When handling Hazmats there is a need to develop procedures and practices that will allow quick and efficient responses to accidents that may result in injuries or damage to the environment. The sponsor must prepare an Emergency Preparedness and Response Plan which should cover the following:

- *Planning Coordination.* The sponsor must prepare procedures for (i) informing the public and emergency response agencies; (ii) documenting first aid and emergency medical treatment; (iii) taking emergency response actions, and (iv) reviewing and updating the emergency response plan to reflect changes and ensuring that the employees are informed of such changes.
- *Emergency Equipment.* The sponsor must is prepare procedures for using, inspecting, testing, and maintaining the emergency response equipment.

⁷ HAZOP: Hazardous Operation Assessment

⁸ FMEA: Failure Mode and Effects Analysis

- *Training.* Employees should be trained on the relevant procedures.

Guidance Note B: Outline of a Hazmats Transportation Plan

Sponsors of MIGA-guaranteed projects contract for the transportation of Hazmats or that offer such transportation service must prepare a Hazmats Transportation Plan is required to . This guidance note provides an outline of the plan. For further information and guidance please refer to IFC's Hazmats Transportation Manual⁹. On the basis of the outcomes of the initial screening Hazmats in quantities above the threshold limits are required a more rigorous handling procedures.

Hazard Assessment

The sponsor must carry out a hazard assessment to identify the potential hazard involved in the transportation of dangerous goods by reviewing: i) the hazard characteristics of the substances identified during the screening stage; ii) the history of accidents, both by the company and its contractors, involving Hazmat transportation, and iii) the existing criteria for the safe transportation of Hazmats, including environmental management systems used by the company and its contractors. This review should cover the management actions, preventive measures and emergency response procedures described below. The hazard assessment helps to determine what additional measures may be required to complete the plan.

Management Actions

- *Management of Change.* These procedures should address (i) the technical basis for changes in Hazmats offered for transportation, routes and/or procedures; (ii) the potential impact of changes on health and safety; (iii) modification required to operating procedures; (iv) authorization requirements; (v) employees affected; and (vi) training needs.
- *Compliance Audit.* A compliance audit is a way to evaluate compliance with prevention requirements for each transportation route or for each Hazmat as appropriate. A compliance audit covering each element of the prevention measures (see below) should be conducted at

least every three years. The Sponsor must prepare a compliance audit program that includes (i) preparation of a report of the findings; (ii) determination and documentation of the appropriate response to each finding; and (iii) documentation that any deficiency has been corrected.

- *Incident Investigation.* Incidents can provide valuable information about transportation hazards and the steps needed to prevent accidental releases. The sponsor must prepare incident investigation procedures to (i) initiate the investigation promptly; (ii) summarize the investigation in a report; (iii) address the report findings and recommendations; and (iv) review the report with staff and contractors.
- *Employee Participation.* The sponsor must prepare a written plan of action regarding the implementation of active employee participation in the prevention of accidents be developed.
- *Contractors.* The sponsor must prepare procedures to ensure that (i) the contractor is provided with safety performance procedures and safety and hazard information; (ii) contractors observe safety practices; and (iii) verify that the contractor acts responsibly. The sponsor must also develop additional procedures to ensure the contractors will (i) ensure appropriate training for their employees; (ii) ensure their employees know process hazards and applicable emergency actions; (iii) prepare and submit training records; and (iv) inform employees about the hazards presented by their work.
- *Training.* Good training programs on operating procedures will provide the employees with the information needed to understand how to operate safely and why safe operations are needed.

The sponsor must prepare a training program that includes (i) the list of employees to be trained; (ii) the specific training objectives; (iii) mechanisms to achieve the objectives (i.e., hands on, workshops, videos, etc.); (iv) means to determine whether the training program is working; and (v) training procedures for new hires and refreshers.

⁹ IFC. *Hazardous Materials Transportation Manual*. Washington, D.C. December 2000.

The sponsor should report on the date of the most recent review or revision to the training program.

Preventive Measures

The sponsor must prepare procedures to implement preventive measures, according to internationally acceptable rules agreeable to MIGA, specific to each Hazmat offered for transportation, including:

- classification and segregation of Hazmats in warehouses and transport units;
- packaging and packaging testing;
- marking and labeling of packages containing Hazmats;
- handling and securing packages containing Hazmats in transport units;
- marking and placarding of transport units;
- documentation (e.g. bills of lading); and
- application of special provisions as appropriate.

Emergency Preparedness and Response Plan

When handling Hazmats there is a need to develop procedures and practices that will allow quick and efficient responses to accidents that may result in injuries or damage to the environment. The sponsor must prepare an Emergency Preparedness and Response Plan which should cover the following:

- *Planning Coordination.* The sponsor must prepare procedures for (i) informing the public and emergency response agencies; (ii) documenting first aid and emergency medical treatment; (iii) taking emergency response actions, and (iv) reviewing and updating the emergency response plan to reflect changes and ensuring that the employees are informed of such changes.
- *Emergency Equipment.* The sponsor must prepare procedures for using, inspecting, testing, and maintaining the emergency response equipment.
- *Training.* Employees should be trained on the relevant procedures.

Guidance Note C: Outline of a Hazardous Waste Management Plan.

Hazardous wastes are generated by a wide array of industries, commercial activities. Even industrial activities that generate small volumes of hazardous waste may use products from hazardous waste generating industries. Adequate measures should be taken for the safe accumulation and labeling, handling, transport, treatment and disposal of hazardous wastes to avoid contamination of other media (e.g. air, ground water, and soils) or expose human populations to pathogenic, carcinogenic or other agents. Hazardous wastes may, under certain circumstances, be recycled or reused in the same or other facility. This guidance note provides an outline of a Hazardous Wastes Management Plan. For further information and guidance please refer to the corresponding IFC manual¹⁰.

Hazard Assessment

On the basis of the outcomes of the initial screening, the sponsor must carry out a hazard assessment covering the following aspects: (i) wastes collection procedures; (ii) storage methods and location including location alternatives considered, if any; (iii) options considered for final disposal or destruction; (iv) environmental impacts from the option selected including by-products (i.e., incineration ashes), (v) detailed information about the mitigation measures to be implemented and (vi) monitoring plan program to assess impacts of the option chosen, as needed.

Management Actions

- *Management of Change.* These procedures should address (i) the technical basis for changes in hazardous wastes management; (ii) the potential impact of changes on health and safety; (iii) modification required to operating procedures; (iv) authorization requirements; (v) employees affected; and (vi) training needs.
- *Compliance Audit.* A compliance audit is a way to evaluate compliance with prevention requirements for each hazardous waste as

appropriate. A compliance audit covering each element of the prevention measures (see below) should be conducted at least every three years. The Sponsor must prepare a compliance audit program that includes (i) preparation of a report of the findings; (ii) determination and documentation of the appropriate response to each finding; and (iii) documentation that any deficiency has been corrected.

- *Incident Investigation.* Incidents can provide valuable information about hazardous waste generation, handling, storage or transportation and the steps needed to prevent accidental releases. The sponsor must prepare incident investigation procedures to (i) initiate the investigation promptly; (ii) summarize the investigation in a report; (iii) address the report findings and recommendations; and (iv) review the report with staff and contractors.
- *Employee Participation.* The sponsor must prepare a written plan of action regarding the implementation of active employee participation in the prevention of accidents be developed.
- *Contractors.* The sponsor must prepare procedures to ensure that (i) the contractor is provided with safety performance procedures and safety and hazard information; (ii) contractors observe safety practices; and (iii) verify that the contractor acts responsibly. The sponsor must also develop additional procedures to ensure the contractors will (i) ensure appropriate training for their employees; (ii) ensure their employees know process hazards and applicable emergency actions; (iii) prepare and submit training records; and (iv) inform employees about the hazards presented by their work.
- *Training.* Good training programs on operating procedures will provide the employees with the information needed to understand how to operate safely and why safe operations are needed. The sponsor must prepare a training program that includes (i) the list of employees to be trained; (ii) the specific training objectives; (iii) mechanisms to achieve the objectives (i., e. hands on, workshops, videos, etc.); (iv) means to

¹⁰ IFC. *Hazardous Waste Management Manual* (forthcoming).

determine whether the training program is working; and (v) training procedures for new hires and refreshers. The sponsor should report on the date of the most recent review or revision to the training program.

Preventive Measures

Preventive measures are specific to the handling and disposal of hazardous wastes. The specific measures will be determined by the characteristics of the wastes and the final disposal to be applied and include:

- safety information,
- hazard analysis, and
- operating procedures.

When process operations are used to treat or destroy these wastes, the preventive measures indicated in the Hazardous Materials Risk Management Plan will apply here (see Guidance Note A).

Emergency Preparedness and Response Plan

When handling hazardous wastes there is a need to develop procedures and practices that will allow quick and efficient responses to accidents that may result in injuries or damage to the environment. The sponsor must prepare an Emergency Preparedness and Response Plan which should cover the following:

- *Planning Coordination.* The sponsor must prepare procedures for (i) informing the public and emergency response agencies; (ii) documenting first aid and emergency medical treatment; (iii) taking emergency response actions, and (iv) reviewing and updating the emergency response plan to reflect changes and ensuring that the employees are informed of such changes.
- *Emergency Equipment.* The sponsor must is prepare procedures for using, inspecting, testing, and maintaining the emergency response equipment.
- *Training.* Employees should be trained on the relevant procedures.

Appendix A:

The following are suggested sources of additional information. They are provided for guidance and are not intended to be comprehensive.

United Nations. *Transport of Dangerous Goods - Model Regulations*. 11th Revised Edition. Geneva 1999.

Organization for Economic Cooperation and Development (OECD). *Guiding Principles for Chemical Accident Prevention, Preparedness and Response*. 1988-89.

US Department of Transport. *Hazmats Regulations* (Title 49 CFR Parts 100-185) October 1, 1998 and amendments through June 30, 2000.

US Environmental Protection Agency. *Protection of Environment* (Title 40 CFR Parts 300-399 and 700 to 789) July 1, 1996.

World Health Organization (WHO). *Harmonization of Approaches to the Assessment of Risk from the Exposure to Chemicals*. 1997.

International Labor Organization (ILO). *Safety in the use of chemicals at work - Code of practice*. 1997.

US National Institute for Occupational Safety and Health (NIOSH). *Pocket Book to Chemical Hazards*. HTML version. December 2000.

EPA-450/4-88-008. *Workbook of Screening Techniques for Assessing Impacts of Toxic Air Pollutants*. September 1988.

EPA-454/R-93-000. *Guidance for the Application of Refined Dispersion Models for Hazardous/Toxic Air Release*. May 1993.

Center for Chemical Process Safety of the American Institute of Chemical Engineers. *Guidelines for Process Safety Documentation*. 1995

Center for Chemical Process Safety of the American Institute of Chemical Engineers. *Guidelines for Process Safety Fundamentals for General Plant Operations*. 1995

Center for Chemical Process Safety of the American Institute of Chemical Engineers. *Guidelines for Hazard Evaluation Procedures. 2nd Edition, with Worked examples*. 1992

American Petroleum Institute. *Risk Based Decision Making* (Publication 16288)

Chemical Manufacturers Association. *Evaluating Process Safety in the Chemical Industry*. Frank P. Lees. *Loss Prevention in the Process Industries*, Vol. I, II, and III. Butterworths: London 1996

Center for Chemical Process Safety of the American Institute of Chemical Engineers. *Guidelines for Hazard Evaluation Procedures*.

American Petroleum Institute. *Management of Process Hazards* (R.P. 750)

Center for Chemical Process Safety of the American Institute of Chemical Engineers. *Plant Guidelines for Technical Management of Chemical Process Safety*. 1992

U.S. Department of Transportation. *North American Emergency Response Guidebook* (NAERG96). 1996

U.S. EPA *Risk Management Programs Regulation* 40CFR part 68

Useful Websites

General

NIOSH *Pocket Book to Chemical Hazards:*

<http://www.cdc.gov/niosh/homepage.html>

NIOSH *Chemical Name and Synonym Index:*

<http://www.cdc.gov/niosh/npg/npgd0000.html>

US EPA *Laws and Regulations:*

<http://www.epa.gov/epahome/lawreg.htm>

Environment Australia. *Hazmats:*

<http://www.act.gov.au/environ/hazard.html>

UK OSHA *Hazardous Chemicals:*

<http://uk.osha.eu.int/topics/>

US OSHA *Hazard and Operability Study (HAZOP)*

http://www.osha-slc.gov/OshStd_data/1910_0119.html

Transportation

US DOT *Hazmats Regulations:*

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

US DOT. *Hazmats Table:*

http://63.141.231.97/cgi-bin/om_isapi.dll?infobase=netdot&softpage=Doc_Frame_Pg42

Transport Canada *Transport Dangerous Goods – Means of Containment:*

http://www.tc.gc.ca/TDGoods/info/moc/moc_e.htm

UNESC *Transport of Dangerous Goods:*

<http://www.unece.org/unece/trans/danger/danger.htm>

Appendix B:

Further Information from IFC:

- IFC, *Hazardous Materials Risk Management Manual*, June 2001.
- IFC, *Hazardous Materials Transportation Manual*, June 2001.
- IFC, *Hazardous Waste Management Manual*, June 2001.

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