

SAUDI ARABIAN OIL COMPANY (Saudi Aramco)
GENERAL INSTRUCTION MANUAL

G. I. NUMBER **1786.001** *Approved*

ISSUING ORG. **FIRE PROTECTION DEPARTMENT**

ISSUE DATE **20/03/2008** REPLACES **9/13/2000**

SUBJECT **HAZARDOUS MATERIAL EMERGENCY RESPONSE**

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1 INTRODUCTION

- 1.1 Hazardous materials incidents typically present highly dynamic situations where proper actions must be undertaken quickly to avoid injury to exposed personnel or damage to the environment. This General Instruction establishes a framework for coordinating activities within Saudi Aramco to assure the impact of any hazardous materials release is kept to a minimum. This General Instruction includes actions to be taken prior to a hazardous materials release, responsibilities of organizations and individuals during a release, the requirements for returning emergency response systems to a ready state following a hazardous materials release.

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3 PURPOSE

- 3.1 The purpose of this General Instruction is to identify organizational responsibilities and inter-relationships within Saudi Aramco while planning for and responding to incidents involving hazardous materials. All Saudi Aramco organizations shall incorporate the requirements of this General Instruction into their procedures, instructions, duties, emergency response plans, and other applicable documents as required.
- 3.2 This General Instruction shall serve as a formal agreement between all Saudi Aramco organizations regarding procedures, guidelines, directives and major plans associated with the planning for and response to hazardous materials incidents as per GI 0.001, Section 2.2.

4 SCOPE

- 4.1 This General Instruction applies to all Saudi Aramco organizations and to all responses by Saudi Aramco organizations and personnel to hazardous material incidents whether on-site or off-site.

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4.2 This General Instruction shall be followed in planning for and responding to a release or potential release of hazardous material incidents involving any Saudi Aramco organization, entity, or operation.

4.3 This General Instruction is limited to the functions and control within the area immediately affected by the hazardous materials incident as defined by the Incident Commander.

4.4 This General Instruction shall not apply to cleanup and recovery operations where the release of hazardous materials has terminated and the threat to life and property has been mitigated.

5 COMMAND AND CONTROL

5.1 Unless otherwise specified in the proponent organization's written Emergency Response Plan the senior FrPD officer on scene shall serve as Incident Commander.

5.2 **Process and Plant Areas:** generally within process and plant areas of the company, hazardous materials incidents are managed by the proponent organization.

5.3 **Industrial and Community Areas:** generally within industrial and community areas of the company, hazardous materials incidents are managed by FrPD.

5.4 **Hazardous Materials Incidents of a Terrorist or Hostile Origin:** within all areas of the company, incidents of terrorist origin and those posed by hostile action are initially managed by ISO. In situations where ISO has determined the terrorist elements have been eliminated and where there is an ongoing or unmitigated release of hazardous materials, management of the incident shall revert to either FrPD or the proponent organization with ISO maintaining control of security and the crime scene.

6 GENERAL RESPONSIBILITIES of PROPONENT ORGANIZATIONS

Emergency Preparedness Functions

6.1.1 Ensure an Emergency Preparedness Coordinator is designated for each organization as required by SMS element 8.

6.1.2 The Emergency Preparedness Coordinator of each Saudi Aramco organization shall ensure that all applicable elements of this General Instruction including all Supplements are fully implemented within the organization.

6.1.3 Develop appropriate procedures, instructions or guidance to assure the timely, safe, and effective implementation of all applicable sections of Supplements 1 & 2 in this document that are required of the organization.

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6.1.4 Ensure sufficient quantities of PPE and response equipment / supplies for personnel are available to safely conduct the tasks and assignments required of them in the organization's Emergency Response Plan. The quantities shall be sufficient to support response tasks and assignments for the entire duration of any incident identified in the scenarios required under SMS Element 8.

6.1.5 Emergency Response Plans

6.1.5.1 Ensure all necessary elements are incorporated into the organization's emergency response plans for safe and effective response to releases of hazardous materials. Emergency response plans shall be developed and maintained in accordance with the Safety Management System manual - Element 8. Plans shall be appropriate for the types and quantities of hazardous materials found within the proponent organization's facilities and operations. Plans shall identify measures which employees within the proponent organizations will undertake in responding to releases of hazardous materials as well as any restrictions or limitations to responses involving hazardous materials. The emergency response plan shall provide guidance regarding properties of hazardous materials, appropriate PPE, air surveillance and monitoring requirements, and appropriate environmental control measures for proper response to and mitigation of hazardous materials incidents.

A comprehensive list of key items that should be included in an emergency response plan can be found in LPD's *Emergency Management Guide*, Section 10.4, with additional key items included throughout Section 10.

6.1.5.2 The emergency response plan shall outline the organization's Incident Command System including a description of the organization's command and control structure, listing key roles, responsibilities and authorities of individuals. ICS structures shall be developed for incidents varying in complexity from a small scale response to a major incident that affects both onsite and offsite facilities/personnel. At a minimum, three scales of ICS shall be developed as follows:

- ICS for an incident that does not affect personnel, operations or the environment outside of the immediate release area and requires emergency response only by personnel within the organization.
- ICS for an incident that does not affect personnel, operations or the environment outside of the immediate release area but requires emergency response by personnel from outside the organization.
- ICS for an incident that does affect personnel, operations or the environment outside of the immediate release area and requires emergency response by personnel from outside the organization.

6.1.5.3 The emergency response plan shall receive a complete review and update at least once per year to ensure it is complete, all data is current, and includes all necessary preparedness and response elements. Partial updates shall be made after significant changes in process or equipment; after drills and incidents; to update telephone numbers and emergency equipment lists; and to address personnel

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changes. All relative Post Incident Critiques and Evaluation Reports required by section 6.2.3.5 shall be reviewed and all deficiencies shall be addressed when updating emergency response plans.

6.1.5.4 Both a hard copy and electronic copy of each organization's Emergency Response Plan shall be forwarded to the Local Fire Control Unit, FrPD Hazardous Materials Coordinator, Superintendent LPD Area office, EPD Manager, and OSPAS Manager.

6.1.5.5 Test preparedness for response to hazardous materials incidents through incorporation of hazardous materials scenarios into the organization's program of drills and exercises (*Drills and Exercises are required by the Saudi Aramco Safety Management System - Element 8.*)

6.1.6 Manning and Incident Command Support

6.1.6.1 Develop appropriate internal incident command procedures and systems to efficiently integrate into all local proponents' incident command systems.

6.1.6.2 Ensure sufficient manpower levels are present to conduct all tasks and assignments required by the organization's Emergency Response Plan.

6.1.6.3 Designate primary and alternate personnel to represent the organization at the Incident Command level of emergency operations.

6.1.7 Hazardous Materials Inventory: Maintain an inventory of all hazardous materials found within the organization's operations or area of control. The inventory shall contain as a minimum the chemical name of the hazardous material, the United Nations or North American number of the chemical (if assigned), general location(s) within the facility where the hazardous material can be found, and an estimate of the maximum quantity of the hazardous material. A MSDS for each chemical or chemical mixture listed in the inventory shall be attached or forwarded with the inventory. This list shall be updated as necessary but no less than annually. A hard copy of the hazardous materials inventory shall be forwarded to the local FrPD Fire Control Unit. An electronic copy of the hazardous materials inventory shall be forwarded to the FrPD Hazardous Materials Coordinator and Manager EPD.

6.1.8 Radioactive Materials Inventory: Maintain an inventory of all radioactive materials and sources found within the organization's operations or area of control. The inventory shall contain as a minimum the chemical name of the material or source, general location(s) within the facility where the source / material can be found, and an estimate of the maximum quantity of the material / source and its activity / energy. This list shall be updated as necessary but no less than annually. A hard copy of the Radioactive Materials and Source Inventory shall be forwarded to the local FrPD Fire Control Unit. An electronic copy of the Radioactive Materials and Source Inventory shall be forwarded to the FrPD Hazardous Materials Coordinator and Manager EPD.

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6.1.9 Loading, Unloading and Transport of Hazardous Materials

6.1.9.1 Ensure all company, contractor and vendor employees who load and unload vehicles with hazardous materials follow all safety precautions listed in SASO 1285 Section 5.4 and Section 5.9, respectively.

6.1.9.2 Ensure all company, contractor and vendor employees who drive vehicles transporting hazardous materials on proponent facilities operate these vehicles in accordance with SASO 1285 Section 5.

6.1.9.3 Ensure all company, contractor and vendor vehicles transporting hazardous materials on proponent facilities are properly equipped with tools for emergency repair of the vehicle in accordance with SASO 1285 Section 4.7.1.8

6.1.9.4 Ensure all company, contractor and vendor vehicles transporting hazardous materials on proponent facilities are properly equipped with suitable protective clothing and equipment compatible with the hazardous materials being transported for the use of personnel operating the vehicle in accordance with SASO 1285 Section 4.7.1.9

6.1.9.5 Ensure all company, contractor and vendor employees who drive vehicles transporting hazardous materials on proponent facilities are capable of communicating in Arabic / English in accordance with SASO 1285 Section 5.5.1.4

6.1.9.6 Ensure all operators of vehicles offloading hazardous materials at proponent facilities properly deploy warning signs and fire extinguishers in accordance with SASO 1285 Section 5.9.6.6.

6.1.9.7 In accordance with SASO 1285 Section 8, ensure all company, contractor and vendor employees who drive vehicles transporting hazardous materials on proponent facilities maintain comprehensive SAFETY INSTRUCTIONS in accordance with SASO 1285 Section 8 written in both Arabic and English. For vehicles transporting hazardous materials in quantities of 1000 liters or more written SAFETY INSTRUCTIONS must be located in the vehicle. For vehicles transporting hazardous materials in quantities less than 1000 liters written SAFETY INSTRUCTIONS may be maintained in a place accessible to all drivers.

6.1.10 Marking, Labeling, MSDS and CHB

6.1.10.1 Ensure all company, contractor and vendor owned vehicles that transport hazardous materials under the authority of or under contract to the organization are properly marked, placarded and labeled in accordance with SASO 1285.

6.1.10.2 Ensure all company, contractor and vendor employees who drive vehicles transporting hazardous materials have a valid Material Safety Data Sheet in their vehicle for all materials being transported in accordance with SASO 1285 Section 5.2.2.

6.1.10.3 Ensure containers and vehicles transporting hazardous materials on their premises are properly marked and labeled in accordance with GI 150.100 sections 5.3 and 5.8.

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6.1.10.4 All hazardous material containers shall be properly labeled in accordance with GI 150.100, Section 4.3.1.

6.1.10.5 Ensure labels and markings on all containers in which hazardous materials are stored are clearly visible and legible.

6.1.10.6 Ensure hazardous materials in fixed or process containments such as vessels and pipes shall be labeled in accordance with GI 150.100 section 5.4 as well as Saudi Aramco Engineering Standard SAES B-067.

6.1.10.7 A Material Safety Data Sheet and /or Chemical Hazard Bulletin for each chemical or chemical mixture shall be readily available at each location where such material is stored or used.

6.1.11 Training and Procedures

6.1.11.1 Individuals and their alternates who are designated to represent an organization at the Incident Command level shall be trained in Incident Command System. *The Fire Protection Department offers ICS courses for both Incident Command level personnel and Incident Managers.*

6.1.11.2 Develop and maintain appropriate internal procedures or instructions to ensure personnel implement safe and effective responses to hazardous materials incidents.

6.1.11.3 Ensure sufficient levels of trained staff are available to respond to hazardous materials releases in a safe and effective manner.

6.1.11.4 Ensure that all contractors working in their facilities are knowledgeable in the safe handling, disposal, and transport of hazardous material in their custody.

6.1.11.5 Ensure personnel working within the organization's facilities or under the organization's direction are trained in the recognition, reporting, and proper response to the release of hazardous materials. This requirement shall apply to all personnel functioning under the organization's control or on behalf of the organization including company employees, contractors, consultants and others whether these individuals are working within a company facility or on public or other properties.

6.1.11.6 Provide appropriate training to personnel to assure each employee understands his/her responsibilities, actions and assignments during a hazardous materials incident and is capable of implementing all required tasks in a safe and effective manner. Training shall include all elements of the Emergency Response Plan as well as specific tasks or actions required to implement specific responsibilities and assignments.

6.1.11.7 Ensure that all company, contractor and vendor employees who drive vehicles transporting hazardous materials in Saudi Aramco owned or leased vehicles in any location or while operating at any Saudi

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Aramco facility or on any public roadway while in support of the organization are properly trained in accordance with SASO 1285 Section 5.5.2 and Section 9.

6.1.11.8 Ensure all company, contractor and vendor employees who drive vehicles transporting hazardous materials on proponent facilities are properly trained in their responsibilities for ACTION IN EMERGENCY in accordance with SASO 1285 Section 7.

6.1.12 Alerting and Communications

6.1.12.1 Develop and maintain a system of alerting personnel in the event of a hazardous materials release.

6.1.12.2 Develop and maintain a system of communicating instructions to personnel for appropriate response to releases of hazardous materials. The communications shall be specific enough to instruct personnel to either evacuate in a specific direction or to shelter-in-place.

6.1.12.3 Accountability - Develop and maintain a timely and accurate system of accountability for all persons within their facilities during the release of a hazardous material. The accountability system shall be specific enough to identify personnel who have either evacuated or sheltered-in-place including the specific location of the sheltered personnel.

6.1.13 Shelter-In-Place

6.1.13.1 Identify specific rooms within buildings that are appropriate for personnel to Shelter-In-Place during the release of a hazardous material. Office Services Department should be consulted for assistance in identifying appropriate rooms / buildings.

6.1.13.2 Develop written instructions and train appropriate personnel in the measures necessary to prepare designated rooms for shelter-in-place during hazardous materials releases.

6.1.13.3 Develop procedures and train appropriate personnel in the measures necessary to communicate with emergency personnel during shelter-in-place episodes.

6.1.13.4 Identify building-specific scenarios where shelter-in-place is appropriate for certain hazardous materials release(s).

6.2 Emergency Response Functions

6.2.1 The organization's Emergency Response Plan shall be implemented in the event of a hazardous material release that affects, or has the potential to affect, the safety or health of any person, may cause damage to the environment, and in circumstances where the magnitude and severity of the release is unknown.

6.2.2 Implement an incident command system appropriate to the size and complexity of response activities to coordinate the actions of responding organizations.

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- 6.2.3 Prior to the arrival of emergency responders assure the immediate area is isolated and restrict personnel from entering the vicinity of the hazardous material release.
- 6.2.4 Conduct an accurate and timely accounting of all personnel and report the findings to the Incident Commander.
- 6.2.5 The designated representative the organization shall report to the Incident Commander to coordinate the organization's resources and activities in the overall emergency response effort.
- 6.2.6 Notify the Incident Commander of the number and location of any personnel who are sheltering-in-place as the result of a hazardous materials release.
- 6.2.7 Notify the Incident Commander of any personnel who are not accounted for at the scene of a hazardous materials incident.
- 6.2.8 Notify the Incident Commander of the number and location of any personnel who are injured as the result of a hazardous materials release.
- 6.2.9 Identify all hazardous materials which are known to be involved or could potentially be involved in the incident and communicate their identity and associated hazards to the Incident Commander.
- 6.2.10 Initiate immediate actions to ensure that the process is stabilized and brought under control. Appropriate control measures shall be taken to minimize the release of hazardous materials such as blocking lines, de-inventory of leaking equipment, collection / containment of materials through trenches and sumps, and other measures intended to eliminate or minimize hazardous conditions.
- 6.2.11 Provide guidance on the proper decontamination of exposed personnel, vehicles and equipment. Additionally, proponent organizations shall manage decontamination fluids, disposable materials and associated wastes.
- 6.3 Post Emergency Functions
- 6.3.1 Ensure that unauthorized personnel do not enter the area until all residual hazardous materials are removed and the site has been returned to the pre-incident status.
- 6.3.2 Participate as necessary in any post response critiques as determined by the Incident Commander and/or the effected organization's manager.
- 6.3.3 Update and modify internal practices, procedures, training, material resources and emergency response plans as necessary to correct deficiencies identified during responses to drills, exercises and bona fide emergencies.

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6.3.4 Develop a cleanup plan which ensures safe and environmentally sound measures to cleanup any residual hazardous materials and return the facility to pre-incident conditions.

6.3.5 The content and comprehensiveness of cleanup plans should be appropriate for the hazards present and the complexity of the cleanup operation(s).

6.3.6 The cleanup plan shall be reviewed and concurred by LPD and EPD.

6.3.7 The cleanup plan shall address as a minimum:

- Identification of hazards
- Personnel pre-entry briefings
- Establishing work zones
- Atmospheric monitoring and/or sampling requirements
- Safety and health training requirements for cleanup personnel
- PPE requirements
- Qualifications of cleanup personnel
- Evacuation procedures
- Medical monitoring
- Decontamination of personnel and equipment

6.3.8 The Incident Commander shall coordinate a critique for all hazardous material responses within 12 hours of the response. Representatives from all responding organizations as well as all other organizations identified by the Incident Commander shall attend and participate in the critique.

In cases where the Incident Commander is not a member of the Proponent Organization, such as cases where FrPD or ISO serve as the Incident Commander, the Proponent Organization will participate in the Post Incident Critique as a member of the team. The Incident Commander will conduct the critique meeting.

The critique shall include, as a minimum, discussion on the strengths and weaknesses of:

- Communications
- Coordination of responding organizations through the ICS

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- Operational safety
- Actual and/or potential exposures
- Response times
- Manpower needs
- Equipment needs
- Expendables and supply needs
- Adequacy of the Emergency Response Plan
- Preparedness of responding organizations
- Training needs

6.3.9 The Incident Commander shall document both strengths and weaknesses of the response as identified in the critique in formal minutes of the critique meeting.

6.3.10 The Incident Commander shall include as an attachment to the critique minutes an evaluation report that includes an evaluation of all of items listed in LPD's *Emergency Management Guide*, Section 9.5.4.5, Evaluation Report.

6.3.11 Post Incident Critique minutes and Evaluation Report shall be distributed at a minimum to the FrPD Hazardous Materials Coordinator and the senior representative from each responding organization.

6.3.12 Proponent organizations shall update and modify internal practices, procedures and plans as necessary to correct deficiencies identified during responses to drills, exercises and bona fide emergencies.

6.3.13 Critique minutes and Evaluation Reports shall be maintained by the proponent organization for a minimum of five years or until such time a new process safety review for the affected facility is conducted - which ever period is longer.

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7 GENERAL RESPONSIBILITIES of RESPONSE ORGANIZATIONS

This section lists requirements to be implemented by all response organizations and is applicable to personnel, procedures, equipment and supplies within the organization as well as contractors, consultants, vendors and others operating under the control of the response organization. Specific responsibilities for individual responding organizations are listed in Supplements 1 and 2.

7.1.1 Emergency Preparedness Functions

- 7.1.1.1 Ensure that sufficient levels of trained staff are available to respond to hazardous materials releases in a safe and effective manner.
- 7.1.1.2 Policies, procedures, instructions and guidance documents shall be in place and be sufficient to safely and efficiently conduct the actions required during response to hazardous materials releases.
- 7.1.1.3 Develop appropriate internal incident command procedures and systems to efficiently integrate into all Proponent Organization's incident command systems.
- 7.1.1.4 Sufficient quantities of equipment, PPE, materials and supplies shall be maintained in working condition to safely and efficiently respond to hazardous materials releases.
- 7.1.1.5 Establish emergency procedures for personnel who may become exposed to hazardous materials in the course of their activities.
- 7.1.1.6 Establish decontamination procedures for equipment and vehicles that may become contaminated by hazardous material(s).
- 7.1.1.7 All responding personnel shall be properly trained to safely conduct their assignments.

7.1.2 Emergency Response Functions

- 7.1.2.1 All organizations responding to a hazardous materials incident shall integrate into the proponent organization's incident command system and coordinate all activities through the Incident Commander
- 7.1.2.2 The designated representative for each organization that responds to hazardous materials incidents shall report to the Incident Commander in accordance with instructions contained in Paragraph 5.2.1 of Supplement 2.
- 7.1.2.3 Maintain accountability of on-site personnel from their organization.
- 7.1.2.4 Report any conditions which may effect the safety of other responders to the Incident Commander.
- 7.1.2.5 All responding personnel shall be provided with proper PPE for their assignment.

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7.1.2.6 Personnel, equipment and vehicles shall be properly decontaminated after exposure to hazardous materials.

7.1.3 Post Emergency Functions

7.1.3.1 Participate in the post incident critique.

7.1.3.2 Modify Emergency Response Plans, procedures, instructions, and guidelines as necessary.

7.1.3.3 Replace any ineffective or damaged equipment.

7.1.3.4 Replenish all expendables.

7.1.3.5 Adjust quantities of expendables, equipment, tools, and other materials as necessary.

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APPROVED BY:

Manager, Fire Protection Department

DATE: _____

CONCURRED BY:

Senior Vice President, Engineering and Project Management

DATE: _____

Senior Vice President, Industrial Relations

DATE: _____

Senior Vice President, Operations Services

DATE: _____

Senior Vice President, Refining, Marketing & International

DATE: _____

Senior Vice President, Exploration and Producing

DATE: _____

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SUPPLEMENT 1

RESPONSIBILITIES OF SPECIFIC RESPONSE ORGANIZATIONS

1. Fire Protection Department (FrPD)

1.1. Emergency Preparedness Functions

- 1.1.1. In conjunction with LPD, EPD and proponent organizations, identify potential hazardous materials release scenarios.
- 1.1.2. Potential hazardous materials incidents shall be incorporated into the pre-incident plans required as per FrPD SOP Ad16.
- 1.1.3. Participate in the development of proponent organization's Emergency Response Plan(s) as necessary.
- 1.1.4. Review and concur, when appropriate, with FrPD specific tasks identified in proponent organization's Emergency Response Plans. Alternately, FrPD shall notify the proponent organization of specific Emergency Response Plan elements assigned to FrPD which FrPD cannot implement.
- 1.1.5. Personnel within each Fire Control Unit shall maintain familiarity with the content of proponent organization's Emergency Response Plans within their response jurisdiction.
- 1.1.6. Response personnel shall be familiar with common hazardous materials found within each Fire Control Unit's primary response jurisdiction.
- 1.1.7. In conjunction with proponent and other support organizations, FrPD shall conduct periodic drills for response to hazardous materials emergencies.
- 1.1.8. Periodically audit proponent's emergency response plans to ensure that they are complete, comprehensive and contain all necessary planning elements.
- 1.1.9. Periodically audit Saudi Aramco organizations to determine the extent of compliance with this General Instruction
- 1.1.10. Maintain appropriate levels of hazardous materials response equipment and supplies to control minor releases of hazardous materials, mitigate larger releases, and conduct rescue operations in the presence of hazardous materials.
- 1.1.11. Maintain appropriate levels of trained personnel to conduct search and rescue operations in the presence of hazardous materials and perform mitigation and control operations involving the release of hazardous materials.

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1.1.12. Develop and maintain an electronic system for emergency access to information on the physical and chemical hazards of chemicals as well as appropriate control and protective measures for such chemicals.

1.2 Emergency Response Functions

1.2.1 Provide offensive control measures in the form of leak control and spill containment for minor releases and defensive mitigation measures for larger uncontrollable releases including vapor dispersion, collection and diversion dikes.

1.2.2 Provide for the gross decontamination of personnel, mobile emergency response vehicles and equipment operated by FrPD, ISO, LPD, EPD and SAMSO.

1.2.3 Provide emergency rescue services for personnel exposed to hazardous materials.

1.2.4 In conjunction with the proponent organization, delineate the Hot Zone, Warm Zone and Decontamination Corridor.

1.2.5 When practical, provide physical demarcation of the Hot Zone, Warm Zone and Decontamination Corridor.

1.2.6 FrPD may respond to offsite incidents as a third party responder upon request of Civil Defense in accordance with existing mutual aid agreements and FrPD response procedures.

1.3 Post Emergency Functions

1.3.1 Ensure FrPD response capability is returned to pre-response status as soon as possible.

1.3.2 Implement all post emergency functions as detailed in section 7 GENERAL RESPONSIBILITIES of RESPONSE ORGANIZATIONS

1.3.3 Conduct an internal response critique which addresses at a minimum:

- Review of the acute and chronic symptoms of exposure to agents involved in the incident, including both immediate and delayed symptoms of acute exposure
- Review of the immediate first aid procedures for the agents involved including both actual and/or potential exposures
- Adequacy of personnel and equipment decontamination
- Communications strengths and weaknesses for communications both internal and external to FrPD.

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- Operational safety performance
- Response time adequacy / areas for improvement
- Manpower needs
- Training needs
- Equipment needs
- Expendables and supplies needs / replacement
- Pre-plan adequateness / required changes and additions
- Adequacy of the proponent Emergency Response Plan / recommended changes and additions
- FrPD Incident Command effectiveness

1.3.4 Ensure that all local FrPD officers are familiar with the general provisions of the proponent's cleanup plan and remain familiar with the status of any ongoing cleanup activities.

2 Industrial Security Operations (ISO)

2.2 Emergency Preparedness Functions

2.2.1 Participate in the development of local proponents' Emergency Response Plans as necessary to ensure that appropriate site control and security measures are incorporated into proponent organization's plans.

2.2.2 Participate in proponent organization's emergency response drills as necessary to ensure that site control and security measures are practiced and functional.

2.2.2.1 Develop appropriate procedures, procure the necessary equipment, and train sufficient ISO personnel to protect all responders from irate or hysterical individuals who may act in a hostile or aggressive manner as a result of exposure or potential exposure to hazardous materials at the scene of a hazardous materials incident.

2.3 Emergency Response Functions

2.3.1 Provide site and traffic control as necessary at the scene of a hazardous materials emergency.

2.3.2 Provide appropriate security for responders who may be subject to the actions of distressed and hysterical casualties at the scene of a hazardous materials incident.

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2.4 Post Emergency Functions

2.4.1 Implement all post emergency functions as detailed in section 7 GENERAL RESPONSIBILITIES of RESPONSE ORGANIZATIONS

3 **Saudi Aramco Medical Services Organization (SAMSO)**

The requirements established in this section apply to all hospitals, clinics and other medical facilities providing medical services to Saudi Aramco facilities whether they are operated by SAMSO or through a contract with SAMSO.

3.1 Emergency Preparedness Functions

3.1.1 Ensure sufficient equipment and supplies are available to SAMSO personnel to safely and effectively respond to hazardous materials incidents.

3.1.2 Participate in the development of local proponents' Emergency Response Plans as necessary to ensure that appropriate medical response measures are incorporated into proponent organization's plans.

3.1.3 Participate in proponent organization's emergency response drills as necessary to ensure that medical support measures are practiced and functional.

3.1.4 Develop appropriate procedures, maintain necessary equipment and supplies, and ensure adequate trained personnel are available to conduct timely and efficient technical decontamination of patients exposed to hazardous materials.

3.1.5 Maintain appropriate gross and technical decontamination capabilities at the site of all SAMSO clinics and hospitals whether operated by SAMSO or contracted organizations.

3.1.6 Develop appropriate procedures for the detection of hazardous materials on patients involved in a hazardous materials incident, decontamination of patients exposed to hazardous materials, and for the protection of SAMSO personnel from exposure to contamination resulting from patient care.

3.1.7 Develop and maintain appropriate medical monitoring procedures for personnel from all organizations at the scene of a hazardous materials incident based upon their primary function and anticipated tasks.

3.1.8 Develop and implement an appropriate follow-up medical monitoring program to track and monitor all personnel with potential exposure at the scene of a hazardous materials incident.

3.2 Emergency Response Functions

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3.2.1 Provide triage, advanced life support, technical decontamination of patients, emergency medical support and treatment as necessary at the scene of a hazardous materials incident.

3.2.2 Provide appropriate chemical contamination detection and patient decontamination at all SAMSO clinics and hospitals where persons exposed to hazardous materials may bypass field decontamination systems and report directly to the medical facility for treatment.

3.2.3 Provide medical monitoring of responders from all organizations at the scene of a hazardous materials incident.

3.3 Post Emergency Functions

3.3.1 Implement all post emergency functions as detailed in section 7 GENERAL RESPONSIBILITIES of RESPONSE ORGANIZATIONS

4 Environmental Protection Department (EPD)

4.1 Emergency Preparedness Functions

4.1.1 Participate in the development of proponent organizations' Emergency Response Plans as necessary to ensure that appropriate industrial hygiene monitoring and environmental control measures are incorporated into proponent organization's Emergency Response Plan(s).

4.1.2 Participate in proponent organization's emergency response drills as necessary to ensure that industrial hygiene monitoring and environmental control measures are practiced and functional.

4.2 Emergency Response Functions

4.2.1 When necessary, provide guidance regarding properties of hazardous materials, appropriate PPE, air surveillance and monitoring requirements, and appropriate environmental control measures for proper response to and mitigation of hazardous materials incidents.

This emergency service provided by EPD shall not relieve proponent organizations of their responsibility to properly and adequately plan for industrial hygiene and environmental control measures associated with hazardous materials incidents in the proponent's Emergency Response Plan.

4.3 Post Emergency Functions

4.3.1 Implement all post emergency functions as detailed in section 7 GENERAL RESPONSIBILITIES of RESPONSE ORGANIZATIONS

4.3.2 Provide guidance to proponent organizations with respect to appropriate environmental control measures in the development of a site cleanup plan.

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- 4.3.3 Provide guidance to proponent organizations with respect to appropriate PPE and personnel exposure controls in the development of a site cleanup plan.
- 4.3.4 Provide guidance to proponent organizations on proper cleanup, disposal and remediation measures necessary to return effected facilities to an acceptable level of environmental quality.
- 4.3.5 Provide guidance to proponent organizations on proper health controls during site cleanup, disposal and remediation following a hazardous materials incident.
- 4.3.6 Assist the Incident Commander in reporting the incident in accordance with the Kingdom National Contingency Plan.

5 Loss Prevention Department (LPD)

5.1 Emergency Preparedness Functions

- 5.1.1 Provide appropriate planning tools for proponent organizations to adequately plan for responses to hazardous materials incidents. Such tools shall include but are not limited to:
 - Guidance documents for the development of Emergency Response Plans
 - Dispersion and overpressure models for toxic and flammable vapor releases
 - Guidance in the development of credible incident scenarios
- 5.1.2 Participate in the development of proponent organizations' Emergency Response Plans as necessary to ensure that appropriate loss prevention measures are incorporated into the plans.
- 5.1.3 Participate in proponent organization's emergency response drills as necessary to ensure that loss prevention measures are practiced and functional.
- 5.1.4 Periodically audit the proponent organization's Emergency Response Plans to ensure they are complete, comprehensive, and contain all necessary planning elements in accordance with SMS element 8.
- 5.1.5 Develop appropriate procedures, guidelines, instructions and train sufficient personnel to safely and effectively fulfill LPD responsibilities identified in this Supplement

5.2 Emergency Response Functions

- 5.2.1 Support all responding organizations by providing guidance as necessary to safely respond to hazardous materials incidents.

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5.2.2 Provide guidance on risk management to proponent organizations and response organizations during all phases of incident response to hazardous materials incidents.

5.3 Post Emergency Functions

5.3.1 Implement all post emergency functions as detailed in section 7 GENERAL RESPONSIBILITIES of RESPONSE ORGANIZATIONS

5.3.2 Provide guidance to proponent organizations with respect to appropriate safety measures to be included in the development of a site cleanup plan.

6 Saudi Aramco Affairs

6.1 Emergency Preparedness Functions

6.1.1 Monitor applicable laws and regulations and notify the FrPD Hazardous Materials Coordinator and EPD of proposed or newly promulgated laws, decrees, regulations and government initiatives which pertain to the use, storage, transportation, processing or response to releases of hazardous materials, medical waste, hazardous waste, or related subjects.

6.1.2 Develop procedures for communicating the required PPE and minimum training requirements to government agencies and outside organizations who respond to hazardous materials incidents at Saudi Aramco facilities.

6.1.3 Develop procedures for communicating the hazards, symptoms of exposure and appropriate first aid as well as medical treatment to government personnel exposed to hazardous materials while responding to hazardous materials incidents at Saudi Aramco facilities.

6.1.4 Develop procedures for documenting possible contamination of government personnel and equipment resulting from responses to hazardous materials incidents at Saudi Aramco facilities.

6.1.5 Develop procedures for recording the names of all personnel from government agencies and outside agencies who respond to hazardous materials incidents at Saudi Aramco facilities.

6.1.6 Maintain pre-packaged information in print and broadcast formats for quick media release. Such packages shall include information on Saudi Aramco products, processes, emergency response capabilities and emergency response training programs.

6.1.7 Participate in the development of proponent organizations' Emergency Response Plans as necessary to ensure that appropriate government relations and public relations elements are incorporated into the plans.

6.1.8 Participate in proponent organization's emergency response drills as necessary to ensure that appropriate government relations and public relations elements are practiced and functional.

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6.1.9 Maintain a list of specific government agencies, outside organizations, and specific individuals who require notification in the event of a hazardous materials release originating from a specific Saudi Aramco facility.

6.1.10 Identify specific media organizations that require notification in the event of a hazardous materials release originating from a specific Saudi Aramco asset.

6.1.11 Maintain a list of Subject Matter Experts for timely collection of appropriate information on Saudi Aramco's hazardous materials and emergency response capabilities as well as Saudi Aramco product specific information.

6.2 Emergency Response Functions

6.2.1 Coordinate all necessary Saudi Aramco Affairs activities through the Incident Commander and Incident Manager.

6.2.2 Establish and maintain communications with outside agencies, organization, and individuals as required by predetermined notification arrangements or as prudent considering any ongoing conditions or unforeseen circumstances which may arise at the scene of a hazardous materials incident.

6.2.3 Coordinate any request from outside agencies with the Incident Commander and Incident Manager.

6.2.4 As directed by the Incident Commander or Incident Manager, inform local government agencies of the incident status and any potential dangers that might require evacuation or other actions by the public.

6.2.5 Ensure both the Incident Commander and the Incident Manager are apprised of any government relations or public relations concerns associated with the incident.

6.2.6 Notify any responding government agency of their function, authority and reporting roles within the ICS.

6.3 Post Emergency Functions

6.3.1 Liaison with Saudi Aramco organizations, government agencies, officials, and interested parties, the media and the public with regard to any required actions associated with the incident.

6.3.2 Implement all post emergency functions as detailed in section 7 GENERAL RESPONSIBILITIES of RESPONSE ORGANIZATIONS

6.3.3 Reporting – Saudi Aramco Affairs shall assist the Incident Commander in reporting the incident in accordance with the Kingdom National Contingency Plan.

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7 Transportation Department

7.1 Emergency Preparedness Functions

7.1.1 Participate in the development of proponent organizations' Emergency Response Plans as necessary to ensure that appropriate transportation elements are incorporated into the plans.

7.1.2 Participate in proponent organization's emergency response drills as necessary to ensure that appropriate transportation elements are practiced and functional.

7.2 Emergency Response Functions

7.2.1 Support the Incident Commander as necessary and coordinate all necessary transportation activities through the Incident Commander and/or Incident Manager as appropriate.

7.3 Post Emergency Functions

7.3.1 Implement all post emergency functions as detailed in section 7 GENERAL RESPONSIBILITIES of RESPONSE ORGANIZATIONS

8 Materials Supply

8.1 Emergency Preparedness Functions

8.1.1 Periodically audit supplier deliveries of hazardous materials to ensure they are in compliance with the requirements set forth in section 6.1.9, 6.1.10, and 6.1.11 of this GI

8.1.2 Ensure each container in a shipment is individually labeled in accordance with GI 150.100 sections 4.3.1 and 4.3.3 prior to distribution. Where individual containers are received in a larger container or pallet each container shall be labeled prior to shipment.

8.2 Post Emergency Functions

8.2.1 Implement all post emergency functions as detailed in section 7 GENERAL RESPONSIBILITIES of RESPONSE ORGANIZATIONS

9 Domestic Sales & Logistics Department (DS&LD)

9.1 Emergency Preparedness Functions

9.1.1.1 Ensure all company, contractor and vendor employees who load vehicles with hazardous materials under the authority or contract of the Domestic Sales & Logistics Department at any facility or public

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roadway while in support of Domestic Sales & Logistics Department functions complies with all applicable sections of SASO 1285.

9.1.2 Ensure all company, contractor and vendor employees who drive vehicles transporting hazardous materials at any facility or on public roadways while in support of Domestic Sales & Logistics Department functions are properly trained in accordance with SASO 1285 Section 5 and Section 9.

9.1.3 Ensure all hazardous materials loaded for international shipment are appropriately labeled, marked and documented in accordance with International Maritime Dangerous Goods Code, the International Civil Aviation Organization's Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO Technical Instructions), Globally Harmonized System of Classification and Labeling of Chemicals (GHS), or the United Nations Recommendations on the Transport of Dangerous Goods whichever is applicable.

9.2 Emergency Response Functions

9.2.1 The primary responsibility for response to highway incidents involving Saudi Aramco owned products being transported by a contract hauler is under the contract hauler as established in the contract documents. Exceptional cases which require mobilization of Saudi Aramco resources will be coordinated in accordance with Domestic Sales & Logistics Department (DS&LD) internal procedures.

FrPD may respond to such incidents as a third party responder upon request of Civil Defense in accordance with existing mutual aid agreements and FrPD response procedures.

9.3 Post Emergency Functions

9.3.1 Conduct a Post Incident Critique for all off-site highway hazardous materials incidents

9.3.1.1 The critique shall include representatives of all response agencies.

9.3.1.2 The critique shall review all items listed in sections 6.3.8 and 1.3.3 of this General Instruction.

10 **Contracting Department**

10.1 Emergency Preparedness Functions

10.1.1 Ensure all contracts for the supply of bulk and mixed load hazardous materials require compliance with SASO 1285

10.1.2 Ensure all contracts for purchase, transportation, repackaging, distribution, cleanup or delivery of hazardous materials include provision for proper labeling and placard in accordance with SASO 1285 as well as GI 150.100 sections 4.3.1, 5.3 and 5.8 as appropriate.

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11 Aviation Department

11.1 Emergency Preparedness Functions

11.1.1 Ensure all transport of Hazardous Materials or Dangerous Goods are conducted in accordance with International Air Transport Association (IATA) requirements and the International Civil Aviation Organization's Technical Instructions for the Safe Transport of Dangerous Goods by Air.

11.1.2 Ensure all personnel involved in handling, screening, loading, transporting, manifesting, labeling, or accepting for transport any Hazardous Material or Dangerous Goods and those personnel responsible for supervising and managing such personnel are trained in accordance with IATA Dangerous Goods regulations and the International Civil Aviation Organization's Technical Instructions for the Safe Transport of Dangerous Goods by Air.

11.1.3 Participate as necessary in the development of Emergency Response Plans for all In-Kingdom airports, aerodromes, airstrips and airfields utilized by Aviation Department to ensure that appropriate elements for response to hazardous materials incidents are incorporated into such Emergency Response Plans.

11.1.4 Participate in proponent organization's emergency response drills as necessary to ensure that appropriate air transportation elements are practiced and functional.

11.2 Emergency Response Functions

11.2.1 Support emergency response operations as needed and coordinate all necessary Aviation Department activities through the Incident Commander or Incident Manager as appropriate.

11.3 Post Emergency Functions

11.3.1 Participate in all post incident critiques for which the Aviation Department either responded to or should have responded to as determined by the Manager of Aviation.

11.3.2 Update and modify internal practices, procedures and plans as necessary to correct deficiencies identified during responses to drills, exercises and bona fide emergencies.

12 Marine Department

12.1 Emergency Preparedness Functions

12.1.1 Ensure transportation of Hazardous Materials or Dangerous Goods is conducted in accordance with International Maritime Dangerous Goods Code (IMDG) requirements.

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- 12.1.2 Ensure all personnel involved in handling, screening, loading, transporting, manifesting, labeling, or accepting for transport any Hazardous Material or Dangerous Goods and those personnel responsible for supervising and managing such personnel are trained in accordance with IMDG regulations.
- 12.1.3 Ensure all company, contractor and vendor owned vessels transporting hazardous materials under the authority of or under contract to the Marine Department comply with the requirements of the International Maritime Dangerous Goods Code (IMDG).
- 12.1.4 Ensure all company, contractor and vendor owned vessels transporting hazardous materials under the authority of or under contract to the Marine Department complies with the requirements of SOLAS Chapter VII.
- 12.1.5 Participate as necessary in the development of Emergency Response Plans for all In-Kingdom ports, terminals, anchorages, fleets, dry docks and facilities utilized by Marine Department to ensure that appropriate elements for response to Hazardous Materials incidents are incorporated into such Emergency Response Plans.
- 12.1.6 Participate in proponent organization's emergency response drills as necessary to ensure that appropriate marine transportation and support elements are practiced and functional.
- 12.1.7 Ensure all personnel who participate in the Global Oil Spill Response program are properly trained in accordance with GI 2.400, GI 2.401, GI 2.402, IMO and Saudi Arabian government requirements.

12.2 Emergency Response Functions

- 12.2.1 Support waterborne emergency response activities and coordinate all necessary Marine Department activities through the Incident Commander or Incident Manager as appropriate.

12.3 Post Emergency Functions

- 12.3.1 Participate in all post incident critiques for which the Marine Department either responded to or should have responded to as determined by the Manager of the Marine Department.
- 12.3.2 Update and modify internal practices, procedures and plans as necessary to correct deficiencies identified during responses to drills, exercises and bona fide emergencies.

13 Inspection Department

13.1 Emergency Preparedness Functions

- 13.1.1 Develop Emergency Response Plans for all radioactive source storage locations within Inspection Department's control.
- 13.1.2 Develop and maintain a generic Emergency Response Plan for industrial radiography incidents.

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13.1.3 Coordinate annual drills within each FrPD division for the purpose of testing response preparedness and practicing response procedures / practices for incidents involving the release of radioactive materials.

13.2 Emergency Response Functions

13.2.1 Serve as Incident Commander for any incident involving radioactive materials/sources which are under the control of the Inspection Department.

13.3 Post Emergency Functions

13.3.1 Implement all post emergency functions as detailed in section 7 GENERAL RESPONSIBILITIES of RESPONSE ORGANIZATIONS

14 Project Management

14.1 In the case of grass root construction projects, Project Management shall function as the Proponent Organization and fulfill the requirements of Proponent Organization as set forth in Section 6 of this General Instruction (GENERAL RESPONSIBILITIES of PROPONENT ORGANIZATIONS). These requirements shall apply for all associated construction activities and facilities under Project Management control including onsite and offsite construction locations such as construction warehouses, lay down yards, sand blasting and paint yards, fabrication shops and offices.

14.2 For projects within the boundary of an operating facility Project Management shall review the Proponent Organization's Emergency Response Plan and notify the Proponent Organization and the Fire Protection Department of any construction activities which may adversely influence or effect the plan. This review and notification shall be conducted for each phase of the project in which construction activities are sufficiently different as to introduce new or alter existing elements of the plan.

14.3 For projects within the boundary of an operating facility all entities under the control of Project Management shall follow the Emergency Response Plan of the proponent organization.

14.4 Participate in proponent organizations drill as necessary to ensure appropriate project-related response measures are practiced and functional.

14.5 For projects within the boundary of an operating facility the facility operator shall maintain the authority and responsibilities of Proponent Organization. Project Management shall ensure all entities under the control of Project Management comply with the individual requirements set forth in Section 6 of this General Instruction (GENERAL RESPONSIBILITIES of PROPONENT ORGANIZATIONS) and report any variance or deviation from these requirements to the facility operator.

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- 14.5.1 A Hazardous Materials Inventory and Radioactive Material Inventory, as referenced in section 6.17 and 6.1.8 of this General Instruction, shall be maintained by Project Management for all locations of the construction project. Both a hard copy and electronic copy of the inventories shall be submitted to the respective Proponent Organization, the local FrPD Fire Control Unit the FrPD Hazardous Materials Coordinator and Manager EPD.

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SUPPLEMENT 2

INCIDENT COMMAND - FUNCTIONAL ROLES AND RESPONSIBILITIES

1. Incident Manager

1.1 Functional Role: The Incident Manager serves as the senior company representative involved in managing the ongoing activities associated with a hazardous materials release. The Incident Manager coordinates the safe operation or shutdown in all affected operations and organizations as well as coordinating all logistics associated with the incident. The Incident Manager also coordinates any offsite activities including notifications and communications from non-Saudi Aramco entities.

1.2 Responsibilities (minimum)

1.2.1 In the event of a hazardous materials incident which requires the activation of an ECC the Incident Manager shall ensure that all necessary organizations and agencies are represented at the ECC.

1.2.2 The Incident Manager shall take measures to ensure that the Incident Commander is not encumbered with non-essential communications and recurrent requests for updates from the ECC during highly dynamic periods such as initial assessment and complex response actions.

1.2.3 The Incident Manager shall ensure that all necessary and appropriate resources are made available to the Incident Commander.

1.2.4 The Incident Manager shall determine if the incident poses an off-site impact or has the potential to cause an off-site impact.

1.2.5 In situations where the release of hazardous materials results in an off-site impact or where the release has the potential for off-site impact the Incident Manager will coordinate notification of all necessary government agencies and non-government entities.

1.2.6 Evacuation & Shelter-In-Place – The Incident Manager shall assist the Incident Commander in communicating and coordinating any requirement for evacuation or shelter-in-place, including designation of evacuation shelters or alternate locations and establishing the necessary infrastructure, security, materials and supplies required to meet the needs of those persons being evacuated.

1.2.7 The Incident Manager shall provide logistical support to the Incident Commander in support of on-scene activities.

A comprehensive list of the Incident Manager's responsibilities can be found in the LPD publication *Emergency Management Guide*

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2 Incident Commander

2.1 Functional Role: The Incident Commander (IC) serves as the senior on-scene decision maker at a hazardous materials incident. He is responsible for all on-scene resources and activities as well as the safety of all on-scene personnel. The Incident Commander's primary function is direction and coordination of Saudi Aramco resources to safely and effectively mitigate potential impacts arising from the hazardous materials incident.

2.2 Responsibilities (minimum)

2.2.1 For any incident involving hazardous materials, the senior on-site FrPD officer shall serve as the Incident Commander until such time as he is relieved of this responsibility as specified in the applicable Proponent Organization's written emergency response plan.

2.2.2 Formulate a response strategy for mitigation of the incident and communicate the strategy to all responding organizations. The strategy shall include goals and expected outcomes as well as any necessary coordination of response organizations.

2.2.3 Periodically update the senior representative of all responding organizations as well as the Incident Manager regarding response conditions. Additionally the Incident Commander shall immediately notify these parties of significant events and changes in conditions which may affect the response strategy or significantly alter the scope of the emergency situation. The Incident Commander's primary communications responsibility is to keep personnel on the scene of a hazardous materials incident apprised of conditions which might adversely affect their health and safety or the completion of their assignments. Equally important is communications required to protect off-site personnel and the community. Secondary communications considerations are those required to ensure the timely delivery of resources required to mitigate the incident. Tertiary communications are those associated with updates to non-responding entities. While updates to the ECC on casualty counts, general site conditions, and similar non-critical information are useful, they should not interfere with critical on-site communications.

2.2.4 Establish an incident command system appropriate to the size and complexity of response activities.

2.2.5 The Incident Commander shall coordinate the actions of all responding organizations.

2.2.6 Designate a Site Safety Officer.

2.2.7 Designate a staging area in a location which is known to be safe for staging of both equipment and personnel. The staging area(s) shall be sufficient in size to allow for safe maneuvering of vehicles.

2.2.7.1 Rehabilitation – The Incident Commander shall designate a rehabilitation area which is outfitted with appropriate toilets, drinking water, utilities, HVAC and other necessary provisions.

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ISSUING ORG. **FIRE PROTECTION DEPARTMENT**

SUBJECT **HAZARDOUS MATERIAL EMERGENCY RESPONSE**

G. I. NUMBER **1786.001** Approved

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- 2.2.7.2 Accountability System – The Incident Commander shall implement an accountability system which includes all responding personnel.
- 2.2.7.3 PPE – the Incident Commander shall communicate the PPE requirements for each work zone to the senior representative of all responding organizations. The Incident Commander shall ensure that all personnel operating within the ICS wear proper PPE for the work zone they are assigned.
- 2.2.7.4 The Incident Commander shall ensure that all personnel operating within the ICS are properly trained to safely conduct the tasks assigned to them.
- 2.2.7.5 The Incident Commander shall implement a procedure to monitor personnel in each work zone.
- 2.2.7.6 Evacuation & Shelter-In-Place – The Incident Commander shall determine the need for evacuation or shelter-in-place of any affected buildings, plants or properties. Any requirement for evacuation or shelter-in-place shall be communicated to the senior representative of each responding organization, the individual(s) responsible for each location to be evacuated or building requiring shelter-in-place, and the Incident Manager.
- 2.2.7.7 Delineation of the Hot Zone (Exclusion Zone) - The Incident Commander, after consultation with key response personnel, shall identify the extent of hazardous conditions within the effected area, delineate the boundaries of the Hot Zone and communicate the Hot Zone boundaries to all responding organizations.
- 2.2.7.8 Delineation of the Warm Zone (Contamination Reduction Zone) - The Incident Commander, after consultation with key response personnel, shall identify the extent of hazardous conditions within the effected area, delineate the boundaries of the Warm Zone and communicate the Warm Zone boundaries to all responding organizations.
- 2.2.7.9 Avoidance of Contamination and Migration - The Incident Commander shall provide direction to all responding organizations regarding site controls and practices necessity to avoid or minimize direct contamination or cross-contamination of personnel, vehicles and equipment as well as controls and measures necessary to minimize migration of contaminants.
- 2.2.7.10 Decontamination The Incident Commander shall provide guidance to all responding organizations on the necessity for decontamination of personnel, vehicles and equipment and also provide guidance on proper decontamination practices.
- 2.2.7.11 Establish a Decontamination Corridor (Decontamination Corridor Line or Contamination Reduction Corridor) with appropriate decontamination procedures and supplies for personnel exiting the Hot Zone as well as a separate Decontamination Corridor for equipment and vehicles.
- 2.2.7.12 The Incident Commander shall ensure appropriate air monitoring and environmental sampling actions have been implemented to ensure concentrations of hazardous materials within the Warm and Cold (Support) Zones are within acceptable limits for the PPE required in these work zones.

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- 2.2.7.13 Coordination of Activities - The Incident Commander shall communicate all necessary information to response organizations required for the safe and effective implementation of their tasks. Such information shall include any current or planned activities of any organization which might adversely affect responders from other organizations or agencies.
- 2.2.7.14 Identification of Hazardous Materials - The Incident Commander shall identify all hazardous materials involved in the incident and communicate their identity and associated hazards to all responding organizations.
- 2.2.7.15 Identification of Associated Hazards - The Incident Commander shall identify all other hazards to which responders may be exposed and communicate these hazards to all responding organizations. (Associated hazards are hazards such as live electrical equipment, agitators, damaged walking surfaces, etc)
- 2.2.7.16 Process Control - The Incident Commander shall take immediate actions to ensure that all associated processes are stabilized and under control. Appropriate control measures shall be taken to minimize the release of hazardous materials such as blocking lines, de-inventory of leaking equipment, collection / containment of materials through trenches and sumps, and other measures intended to eliminate or minimize hazardous conditions. Processes are not limited to hydrocarbon processing operations. (Consider processes in non-plant scenarios such as compression of respiratory air at a fire station or a motor driven herbicide sprayer in gardening.)
- 2.2.7.17 Site Control – the Incident Commander shall take appropriate actions to preclude unauthorized personnel from entering the work zones, command post, and staging areas. FrPD and ISO may assist proponent organizations in fulfilling this requirement. The Incident Commander shall ensure that unauthorized personnel do not enter the area until all residual hazardous materials are removed and the site has been returned to the pre-incident status.
- 2.2.7.18 Containment of Runoff - The Incident Commander shall coordinate the containment and disposal of site run-off, decontamination fluids, materials and associated wastes.
- 2.2.7.19 Termination of Emergency Conditions – the Incident Commander, after consultation with key response personnel, shall determine when emergency conditions are no longer present and shall terminate the emergency as appropriate.
- 2.2.8 Responder Records – The Incident Commander shall maintain a record of all responders and communicate this record to FrPD, SAMSO, and ISO upon their request.
- 2.2.9 Reporting – The Incident Commander shall ensure that the incident is reported in accordance with the Kingdom National Contingency Plan. EPD and SAA may provide assistance in such reporting.

A comprehensive list of the Incident Commander's responsibilities can be found the LPD publication *Emergency Management Guide*

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3 Site Safety Officer

3.1 Functional Role: The Site Safety Officer serves as a health and safety advisor to the Incident Commander. The Site Safety Officer is responsible for monitoring site conditions and response activities and providing recommendations to the Incident Commander for actions necessary to protect responders from potential hazards associated with the hazardous materials incident.

3.2 Responsibilities: (minimum)

3.2.1 Assist the Incident Commander by providing analyses of the hazards related to all response activities and intervene as necessary to avoid actions that place responders in imminent danger.

3.2.2 Conduct an assessment of proper PPE for all on-scene personnel. Communicate any deficiencies in PPE to the personnel with deficient PPE, the Incident Commander, and the senior representative of the responding organization for the personnel with deficient PPE.

3.2.3 Be aware of the physical, chemical, radiological and toxicological characteristics of all materials involved in the incident with the potential for release from their original containment.

3.2.4 Gather and review safety and health information including any available Hazardous Materials Bulletins, MSDSs or software-based hazardous material data for all materials involved in the incident.

3.2.5 Provide the Incident Commander with an analysis of PPE requirements for personnel working in each work zone.

3.2.6 Provide the Incident Commander and Incident Manager with an analysis of potential offsite impacts associated with the hazardous materials release as well as recommendations for expanding the exclusion zone and measures necessary to protect or minimize exposures to offsite populations.

3.2.7 Develop an appropriate decontamination plan which addresses decontamination of both personnel and equipment. Ensure the decontamination plan includes measures for management of decontamination fluids / materials, provides for appropriate monitoring to determine the effectiveness of the decontamination process, and establishes a mechanism for tracking personnel and equipment exposed to hazardous materials during an incident.

3.2.8 Assess the potential for mechanical and/or structural failures and advise the Incident Commander of any hazards associated with such failures.

3.2.9 Provide the Incident Commander with recommendations for appropriate air monitoring and environmental sampling measures to ensure the boundaries of each work zone are appropriately established and maintained.

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- 3.2.10 Advise the Incident Commander of the acute and chronic symptoms of exposure to agents involved in the incident, including both immediate and delayed symptoms of acute exposure.
- 3.2.11 Monitor on-scene personnel for symptoms of acute exposure to agents present.
- 3.2.12 Advise the Incident Commander of the immediate first aid procedures for the agents involved including both actual and/or potential exposures.
- 3.2.13 Monitor on-scene operational safety performance and advise the Incident Commander of any deficiencies as well as recommendations to improve operational safety.
- 3.2.14 Monitor incident command effectiveness and advise the Incident Commander of any deficiencies as well as recommendations to improve incident command efficiency.
- 3.2.15 Coordinate with the Incident Commander and on-scene SAMSO personnel to ensure that appropriate emergency medical assets are on site to adequately respond to any potential medical emergency associated with the incident.
- 3.2.16 Analyze and make recommendations to the Incident Commander regarding the need for and/or effectiveness of personnel rehabilitation practices.
- 3.2.17 Document all safety and health related activities associated with the response.
- 3.2.18 Request from the Incident Commander additional safety and health assets, including personnel, expertise and equipment, as necessary to ensure that the incident is managed appropriately with respect to safety, health and the environment.

4 Emergency Preparedness Coordinator (*from Proponent Organization*)

4.1 **Functional Role:** The Emergency Preparedness Coordinator is the designated individual within each organization with responsibility for developing the organization's Emergency Response Plan(s). During emergencies involving hazardous materials the proponent Emergency Preparedness Coordinator will serve as an advisor to the Incident Commander.

4.2 Responsibilities: (minimum)

- 4.2.1 During drills and actual emergencies involving hazardous materials the proponent Emergency Preparedness Coordinator will report to the Incident Commander.
- 4.2.2 The proponent Emergency Preparedness Coordinator will provide advice to the Incident Commander regarding actions identified in the proponent Emergency Response Plan for the incident scenario or alternately any similar existing scenario.

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5 Senior Representative from each Response Organization

5.1 Functional Role: The Senior Representative from each Response Organization will advise the Incident Commander regarding his organization's resources which may be deployed in effort to mitigate the hazardous materials release or more effectively manage the incident.

5.2 Responsibilities: (minimum)

5.2.1 Upon arrival on the scene report immediately to the Incident Commander.

5.2.2 Report any conditions which may adversely affect the safety and health of responders to the Incident Commander and Site Safety Officer.

5.2.3 Coordinate all activities of the organization through the Incident Commander.

5.2.4 Coordinate requests for additional assets and resources through the Incident Commander.

5.2.5 Assist the Incident Commander in formulation of a response strategy by providing information on the organization's capabilities to assist in mitigation of the incident.

5.2.6 Advise the Incident Commander of assignments which cannot be safely or successfully completed.

5.2.7 Keep the Incident Commander apprised of changing conditions within the organization's responsibility.

5.2.8 Ensure that personnel operating at the scene of the incident coordinate communications with other departments and the ECC through the Incident Commander or his staff.

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SUPPLEMENT 3

DEFINITIONS, ABBREVIATIONS and REFERENCES

1. DEFINITIONS

- 1.1 Cold Zone or Support Zone is the area outside of the Hot and Warm Zones where it is known or presumed that there is no risk to persons or the environment posed by the hazardous material release.
- 1.2 Contamination Control Line a line which delineates the outer boundary of the Warm Zone. This line marks the boundary between the Warm Zone and the Cold Zone.
- 1.3 Dangerous Goods another term for Hazardous Material used by certain regulatory agencies and organizations. While there may be subtle differences in these definitions by certain regulatory agencies the terms Hazardous Materials and Dangerous Good are for all practical applications interchangeable.
- 1.4 Decontamination Corridor (*also known as Decontamination Line or Contamination Reduction Corridor*): an area where systematic decontamination is conducted.
- 1.5 Disaster Control Center (DCC): see Emergency Control Center
- 1.6 Emergency Control Center (ECC): A center designed and outfitted to support emergency command functions at the mid-management level. ECC operations support On-Site response operations. The term DCC or EOC may also be used in some Emergency Response Plans.
- 1.7 Emergency Preparedness Coordinator: The individual responsible for maintaining a proponent organization's Emergency Response Plan(s). This individual is an experienced member of the management team with knowledge of emergency planning and response activities who is authorized to obtain commitments and follow actions through to completion.
- 1.8 Emergency Operations Center (EOC): see Emergency Control Center
- 1.9 Environmental Protection Department (EPD): the Saudi Aramco organization with primary responsibility for development and coordination of environmental protection and industrial hygiene programs.
- 1.10 Fire Protection Department (FrPD): the Saudi Aramco organization with primary responsibility for response to fires, rescue operations and hazardous materials incidents.
- 1.11 Grass Root(s) Construction Projects: projects which are not physically located within an existing facility. Grass root construction projects also include construction at sites where no existing site improvements are present.

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- 1.12 Gross Decontamination: this is the initial step in the decontamination process in which surface contaminant is significantly reduced on the exposed persons and equipment. This process does not remove all contamination. The purpose of gross decontamination is to rapidly reduce the concentration of hazardous materials on highly contaminated surfaces.

- 1.13 Hazardous Material: For the purpose of this GI hazardous material shall include any material or agent that poses a risk to the health and safety of persons and/or the environment if it is not properly controlled during handling, storage, manufacture, processing, packaging, use, disposal, or transportation. Hazardous materials may include radioactive materials, biological agents, or chemical agents. All chemicals and agents including process feeds, process intermediate chemicals, transition chemicals, catalysts, boiler chemicals, process treatment chemicals, final products, construction materials, and maintenance chemicals are included in this definition. (This definition differs from the term as used in EPD documents.)

- 1.14 Hazardous Materials and Rescue Officer (HMRO): FrPD officer with the primary duty of coordinating hazardous materials and rescue programs within the division.

- 1.15 Hazardous Materials Communication Program (HAZCOM): A Saudi Aramco program consisting of employee training, container labeling, Chemical Hazard Bulletins, and Material Safety Data Sheets designed to inform employees of the hazards associated with chemicals found in the workplace. See G.I. 150.100

- 1.16 Hazardous Material Coordinator (HMC): a senior officer within the FrPD with the primary duty of coordinating Saudi Aramco programs relative to hazardous materials and rescue operations.

- 1.17 Hazardous Material Incident: Any emergency incident involving the release or potential release of a hazardous material.

- 1.18 Hot Zone: a zone in which the environment is either known or suspected to be unsafe for entry without specific PPE. The Hot Zone is delineated by the Incident Commander. The Hot Zone may also be referred to as the Exclusion Zone in some documents.

- 1.19 Incident Command System (ICS): a system of command and control designed to coordinate communications and activities of multiple organizations during events. ICS includes an organizational hierarchy, structured decision making tools, common procedures, and activity tracking tools to achieve a coordinated response.

- 1.20 Incident Manager: the individual responsible for managing the ECC operations and coordination of all off-scene responding organizations.

- 1.21 Incident Commander: the individual in overall command of all on-scene personnel and assets at a hazardous materials incident.

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- 1.22 Industrial Hygienist an individual that provides direct consulting support regarding personal protective measures and equipment needed to insure the safety of the general public and personnel that are involved in the response team.
- 1.23 International Air Transport Association the international organization which regulates packaging, labeling and restrictions for transport of hazardous materials by air.
- 1.24 International Maritime Dangerous Goods Code (IMDG): an IMO code which requires the labeling, marking and communication of hazards associated with chemicals transported by ship.
- 1.25 International Maritime Organization (IMO): an international organization which establishes standards and regulations for the operation of ships and mariners while at sea and international ports. IMO standards and regulations are the basis of Admiralty Law and serve as the international law governing maritime activities.
- 1.26 Industrial Security Operations (ISO): the Saudi Aramco organization with primary responsibility for security of Saudi Aramco assets and communities.
- 1.27 Loss Prevention Department (LPD): the Saudi Aramco organization with primary responsibility for development of safety policy and practices.
- 1.28 Material Safety Data Sheet (MSDS): a document which describes the physical and chemical properties as well as the hazards of a specific chemical or chemical mixture.
- 1.29 NFPA 471: the National Fire Protection Association's recommended practice for responding to hazardous materials incidents (standard).
- 1.30 On-Scene: The immediate area surrounding a hazardous materials incident which is under the control of the Incident Commander.
- 1.31 Off-Scene: areas beyond the immediate area surrounding a hazardous materials incident which are not under the control of the Incident Commander.
- 1.32 On-Site: all locations within the plant, terminal, industrial area, or other Saudi Aramco facility from which a hazardous materials incident originates. Saudi Aramco communities are considered on-site.
- 1.33 Off-Site: all locations outside plant, terminal, industrial area, or other Saudi Aramco facility from which a hazardous materials incident originates. All public, government, and non-Saudi Aramco areas are considered off-site.
- 1.34 Potential Release: any incident which could reasonably result in the release of hazardous materials.
- 1.35 Proponent Organization: the Saudi Aramco organization that operates or occupies a facility or asset from which a hazardous materials incident originates. (For example, a graphic arts unit may be in

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possession of certain printing dies, chemicals and cleaners that exhibit hazardous characteristics when spilled. In this case the graphic arts unit would be the Proponent Organization not Office Services which maintains the building.

- 1.36 Rehabilitation the practice of rotating responders out of labor intensive, stressful, or long term assignments. The purpose of rehabilitation is to assure individuals do not become exhausted, weak or overcome by conditions present. Rehabilitation may include medical monitoring, replenishment of fluids, food intake, and rest in a stress free and environmentally controlled atmosphere.
- 1.37 Response Organization: any department, group, unit, entity or other organization which responds to, provides support to, or dispatches assets to a hazardous materials incident.
- 1.38 Saudi Arabian Standards Organization (SASO): the organization with primary responsibility for establishing standards that are applicable within the Kingdom of Saudi Arabia.
- 1.39 SASO 1285 – Transportation of Dangerous Substances by Road, General Safety Requirements: the SASO standard that establishes requirements for the design, operation and marking of vehicles that transport dangerous substances by road.
- 1.40 Shelter-In-Place: Shelter-In-Place is a term used to describe the practice of taking shelter inside of a building to protect humans against exposure to high concentrations of chemicals found outside of the building as a result of a chemical release. The concept of Shelter-In-Place is appropriate when high concentrations of chemicals are spread over a large area preventing persons within the immediate chemical release area from evacuating without significant exposure to the unsafe atmosphere. In this event some buildings offer protection from chemical vapors due to their air exchange rate or “tightness”. Buildings with good air exchange rates will impede the infiltration of chemical contaminants from outside for a period sufficient for personnel to be rescued or for the chemical cloud to dissipate to safe levels.
- 1.41 Site Cleanup Plan: a written plan which details the activities required to cleanup residual contaminants after emergency response operations have been terminated.
- 1.42 Site Safety Officer the individual with responsibility for monitoring and advising the Incident Commander regarding safety of on-scene operations at a hazardous materials incident.
- 1.43 Staging Area: the location(s) where responding organizations assemble their personnel and equipment while awaiting assignments.
- 1.44 Standard for Transportation of Dangerous Substances by Road (SASO 1285): the SASO standard which establishes requirements for the safe design and operations of vehicles which transport hazardous materials within the Kingdom of Saudi Arabia.
- 1.45 Standard Operating Procedure (SOP): a procedure which establishes the actions to be implemented to accomplish a given results under normal circumstances.

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- 1.46 Technical Decontamination: this is the second step in the decontamination process involving a more thorough removal, deactivation or neutralization of surface contaminants. Technical decontamination is conducted to minimize residual contaminates on exposed persons and equipment. (see Gross Decontamination for comparison)
- 1.47 Warm Zone / Contamination Reduction Zone (CRZ): a zone which serves as a buffer or transition between the Hot Zone and the Cold Zone. Decontamination of equipment and personnel occurs in the Warm Zone. The Warm Zone is delineated by the Incident Commander in effort to reduce the potential for contaminants from the Hot Zone affecting personnel operating in the Cold Zone. The Warm Zone may also be referred to as the Contamination Reduction Zone (CRZ) in some documents.
- 1.48 Work Zones: this includes all three zones (Hot, Warm, Cold) established at the scene of a hazardous materials incident.

2. ABBREVIATIONS

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| 2.1 | CHB | Chemical Hazard Bulletin |
| 2.2 | ECC | Emergency Control Center |
| 2.3 | EPD | Environmental Protection Department |
| 2.4 | FrPD | Fire Protection Department |
| 2.5 | HVAC | Heating Ventilation and Air Conditioning |
| 2.6 | IC | Incident Commander |
| 2.7 | ICS | Incident Command System |
| 2.8 | IMDG | International Maritime Dangerous Goods Code |
| 2.9 | IMO | International Maritime Organization |
| 2.10 | IATA | International Air Transport Association |
| 2.11 | ISO | Industrial Security Operations |
| 2.12 | LPD | Loss Prevention Department |
| 2.13 | MSDS | Material Safety Data Sheet |
| 2.14 | OSPAS | Oil Supply Planning & Scheduling Department |
| 2.15 | PPE | Personal Protective Equipment |
| 2.16 | SAA | Saudi Aramco Affairs |
| 2.17 | SAMSO | Saudi Aramco Medical Services Organization |
| 2.18 | SASO | Saudi Arabian Standards Organization |
| 2.19 | SASO 1285 | Standard for Transportation of Dangerous Substances by Road |
| 2.20 | SMS | Saudi Aramco Safety Management System |
| 2.21 | SOLAS | Safety Of Life At Sea |

3. REFERENCES

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| 3.1 | GI.150.100 | Hazardous Materials Communication Program (HAZCOM) |
| 3.2 | IMO IMDG | International Maritime Dangerous Goods |

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| 3.3 | Code ICAO | International Civil Aviation Organization Technical Instructions for the Safe Transport of Dangerous Goods by Air |
| 3.4 | GHO | Globally Harmonized System of Classification and Labeling of Chemicals |
| 3.5 | UN TDG | United Nations Recommendations on the Transport of Dangerous Goods |

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