

LPG FACILITY IN RIO BUENO TRELAWNEY – JAMAICA

PROPOSED OUTLINE

GENERAL EMERGENCY RESPONSE/CONTINGENCY PLAN

1.0 Introduction

Industrial Gases Limited will be constructing a Liquefied Petroleum Gas (LPG) importation and bulk storage terminal, including the necessary infrastructure that will facilitate the receipt and storage of LPG from ships and the loading and delivery of LPG in bulk and cylinders at Rio Bueno in the Parish of Trelawney.

This proposed plan will be based on International Guidelines for Emergency Response for the Natural Gas Industry and the National Oil and Hazardous Materials Contingency Plan for Jamaica and the Terms of Reference.

1.1 The Threat

LPG may not produce harmful effects on the environment but there are risks associated with its transportation, storage and handling.

Threats to the Liquefied Petroleum Product (LPG) facility comes from both natural and man-made disasters such as hurricanes, earthquakes, leakages, chemical spills, fires and sabotage.

1.1.2 Manmade and other Hazards:

The associated risk with the transfer pipeline, the storage and loading facility are;

1.1.2.1 Pipeline;

- Damage/rupture caused by collision of ships during berthing operations
- Rupture of transfer hose from ship to shore

- Leakage from transfer and normal operation
- Unauthorized access and sabotage at the port
- Leakage caused from deterioration as a result of corrosion
- Accidental rupture during excavation for other services
- Rupture/leaks from natural disaster - Earthquakes
- Industrial and Terrorist activities
- Breakdown of written procedures governing the operation and maintenance of the pipeline and the actions to be taken in the event of an incident

1.1.2.2 Storage and Loading Facility:

- Unauthorized access and sabotage at the storage and loading facilities
- Industrial unrest and Terrorist activities
- Rupture/leaks of storage tanks from Earthquakes
- Rupture/leakage resulting in a fire and possible explosion.
- Ignition sources – cigarettes, open flames, lightening, spark ignition vehicles

1.2 Assumptions

In the event of a natural or man-made disaster, and given enough warning, it is expected that the necessary arrangements will be in place for coordinating a successful emergency response or evacuation.

1.3 Scope

This plan applies to all emergency preparedness and response activities at the port reception facility, the transfer pipeline to storage tanks and the automated filling system into bulk trucks, trailers and cylinders, as well as during delivery of products.

2.0 AIM

The primary aim of this general plan is to carry out timely and coordinated response to reduce loss of life and property in the event of a disaster or incident.

3.0 EXECUTION

3.1 Concept of Operations.

This plan is effective for all types of emergencies and will come into force whenever there is an actual disaster or imminent threat of a disaster. It establishes basic guidelines that will assist the management of the LPG Facility in Rio Bueno to carry out the necessary preparedness and response functions in the event of a threat or disaster

3.1.1 Assignments and Tasking Details/ Responsibilities

The Management team headed by the Managing Director is the overall coordinating body for all emergencies at the LPG Facility and is responsible for ensuring:

- the implementation of awareness programmes on all aspects of disasters for staff and visitors at the Facility.
- that an identified Emergency Operational Centre (EOC) is established and activated once a warning is given.
- that a member of the team is appointed as the Emergency Coordinator.
- that operational plans are put into effect by activating warning systems and response agencies
- coordinating the relay/dissemination of information pertaining to the disaster/emergency and its impact.
- the coordination of rescue, relief and/or evacuation operations
- co-opting other personnel as may be required during emergencies

- that a Register is kept at the site and all necessary information is made available to the response agencies on request in the event of a disaster.
- that all response agencies to which specific responsibilities have been assigned are truly prepared to carry out these responsibilities.

4.0 COORDINATING INSTRUCTIONS.

Warning of impending or actual emergency/disaster situations may be disseminated in a number of ways (Radio & Television Stations, Written Notices, etc). These will of course depend on the type of situation.

4.1 Hurricanes

The following AMBER warnings will be issued prior to a hurricane:

- AMBER - Hurricane Advisory 48 hours before ETA
- AMBER PHASE 1 - Issue Hurricane 'Watch' 36 hours before ETA
- AMBER PHASE 2 - Issue Hurricane 'Warning' 24 hours before ETA
- AMBER PHASE 3 - 12 hours before ETA
- AMBER PHASE 4 - The Blow
- AMBER PHASE 5 - The Recovery

4.2 Earthquake:

Jamaica is located in a geologically active zone; and is therefore, subject to earthquakes. They are unpredictable and may strike suddenly and unexpectedly. Depending on the magnitude of the earthquake, it may result in casualties, deaths, landslides and damage to structures thereby causing disruption of activities.

4.3 Fire:

A fire alarm must be raised by the person(s) who sees the fire by shouting “FIRE, FIRE!”

NOTE: All reports of major emergencies must be directed to the Managing Director and/or the designated Member of the management team who is appointed as the Emergency Coordinator.

50. ADMINISTRATION AND LOGISTIC ARRANGEMENTS

5.1 Shelter location/Safe areas:

Emergency assembly areas and shelter locations to be identified and signs posted.

6.0. COMMAND AND CONTROL

6.1 EOC Location:

In the event of an emergency, the EOC will be established as directed by the management team.

- The EOC will remain operational throughout all phases of an incident.
- Ensure that the EOC is properly equipped with radios, status boards, maps, weather charts, etc.

6.2 Communications:

Establish communication links (with back ups) with all the relevant agencies and be prepared to maintain these links and disseminate information as necessary

7.0 AGENCY ROLES/FUNCTIONS/RESPONSIBILITIES

Office of Disaster Preparedness and Emergency Management (ODPEM)

Ensure maximum disaster awareness and preparedness of efficient coordination of emergency response to any threat. (Education and Awareness).

Jamaica Fire Brigade (JFB):

Ensure that fire escape routes are appropriately marked, and that adequate fire fighting equipment is in place. (Trained Fire-fighters/equipment to respond)

Jamaica Defence Force (JDF):

Provide emergency support for medical service, evacuation, search & rescue and fire fighting.

Jamaica Constabulary Force (JCF):

Provide security services and the on-scene coordination of crowd control in the event of a emergency response, disaster or the threat of a disaster.

Red Cross Society of Jamaica (RCSJ):

Provide emergency first aid and services in the area of rescue and relief.

ANNEX “A”

EMERGENCY CONTACT LIST

LPG FACILITY

- Managing Director
- Board Chairman
- Key Staff Members

ODPEM

NEPA

Jamaica Fire Brigade

Jamaica Defence Force

Jamaica Constabulary Force

Red Cross - Jamaica

OVERSEAS ASSISTANCE

ANNEX “B”

RESOURCE LIST

The following is a suggested list of the resource materials, which should be made available for emergencies:

Maps (appropriately scaled)

VHF Portable Radios

Fire Extinguishers

Emergency Patch Kits

First Aid Kits and Stretchers

Portable Fuel Container (Kerosene, etc.)

Waterproof Flashlight and Batteries

Personal Protective Equipment

Rain Coats

Binoculars

Hurricane Lamps with Fuel

Ply Boards, Hammer, Hand Saw, Nails etc

D-Links

Ropes

*** Include a list of the locations where these will be kept**

ANNEX “C”

LPG SPILL

INTRODUCTION:

LPG is a mixture of propane, butane, isobutene, propene, and butanes. The composition of LPG varies from supplier to supplier and from season to season. Petroleum gas has an energy content of approximately 99,000 BTU per gallon. The main hazard of LPG is its flammability. As a rule of thumb, the lower explosive limit (LEL) of LPG is about 2%. When the concentration of LPG vapour in air is between the lower and upper explosive limits and an ignition source is introduced, the vapour will ignite, sometimes by powerful explosion.

An LPG leak in a confined space is especially hazardous, because the vapour concentration can rapidly surpass the LEL, and LPG ignited within a confined space usually explodes. Because LPG vapour is heavier than air when at typical ambient temperatures, at high concentrations it tends to remain near the ground and settle in low areas. For this reason, it may mix with air and disperse relatively slowly, prolonging the explosive hazards.

ACTION IN CASE OF A MAJOR SPILL

- Immediately inform Supervisor/Staff member/ Laboratory Management Team (Factory Response Team?)
- Shut down all machinery in the area
- Evacuate injured/non essential staff
- Inform neighbouring Communities/Facilities as necessary
- Confirm accuracy of report and notify ODPEM, NEPA, JDF and/or JCF as appropriate.

- The Coordinator must maintain contact with the Response Team and all other Agencies involved.
- Proper equipment must be kept on hand for rescue operations (Neutralizing Agents, First-Aid Kit, dry clothing, ropes, flashlights, VHF Radios, Stretcher, etc).
- A comprehensive report to be prepared by the Coordinator and presented to LPG Facilities Head Office soon after the operation ends.
- A Debrief to be arranged so that lessons learned, methodologies, etc can be discussed and preventative actions taken in the future where necessary.

ANNEX “D”

HURRICANE INSTRUCTIONS

INTRODUCTION

This instruction lays down the procedures to be adopted and actions to be taken within the LPG Facility should a hurricane approach/strike Jamaica.

HURRICANE CHARACTERISTICS

- SEASON** : Commences 01 June to 30 November, but may occur at any time
- SPEED** : Speed of Advance of approximately 12 – 15 knots (20-25 km/hr).
- COURSE** : Normally WNW to NW during the initial stages but curves towards the North as it progresses (in this Hemisphere).
- WIND** : Wind speeds generally in excess of 75 knots (135 km/hr) but may gust up to 170 knots (ALLEN Aug. 1980).
- SURGE** : Storm surge may be experienced if hurricane passes close offshore (3 – 10 kilometres).
- WIDTH** : Width of destruction 170 – 250 km
- RAINFALL** : Up to 450mm in the first 2 hours
- LULL** : A deceptive lull lasting approximately 30 minutes occurs whenever the Centre (EYE) of the hurricane passes.

START OF HURRICANE SEASON

1. Ensure that all necessary preparedness measures are taken: **(in each location)**
 - a. Confirmation of full insurance coverage.
 - b. Update of contact list and staff contact information
 - c. Physical inspection of buildings and assets
 - d. Confirmation of readiness of battery-operated radios and flashlights.
 - e. Confirmation of readiness of emergency supplies.
 - f. Confirmation of readiness of fire fighting and other safety equipment.
 - g. Confirmation of proper storage of inventory on pallets or shelves.
 - h. Confirmation of security arrangements in place.
 - i. Confirmation of the proper protection of all office equipment, records, files, computer back-up data, etc.

THE WARNING SYSTEM

The following warnings will be issued prior to a hurricane. LPG Facility employees and visitors alike are required to pay careful attention to these warnings, as there are certain procedures to follow after each warning. **(Signage will be required in each Location)**

- WARNING - Issue Hurricane Advisory
- PHASE - 1 - Issue Hurricane Watch 36 hrs before ETA.
- PHASE - 2 - 24 hours before ETA
- PHASE - 3 - 12 hours before ETA
- PHASE - 4 - The Blow
- PHASE - 5 - Business Recovery

The Managing Director (or in his/her absence, his/her Deputy) is to access the hurricane threat in consultation with MET Office and the ODPEM. He/She is to bear in mind the time available and the actions to be taken at each phase of the warning system.

Depending on the ETA of the Hurricane (day/night/week end), he/she may decide to vary the issue of different phases to permit the completion of preparation in working hours whenever possible.

ACTION AT AMBER

The following action is to be taken:

- All employees and visitors are to be alerted to the possible hurricane threat.
- Employees on leave are to make contact with the Head Office. Everyone is to remain alert either to a cancellation of the warning or an escalation of the hurricane threat.

ACTION AT PHASE 1. (36 hours before ETA)

With the hurricane watch in effect, the activities to be carried out should include procuring plastic bags, nails, boards, identifying storage areas, etc.

- Check first- aid stores
- Place plastic bags (appropriate sizes) near to critical equipment and vital records for easy access.
- Brief employees and delegate responsibility to various individuals.
- Ensure security personnel are properly briefed as to their responsibility
- Ensure that there are no areas that will encourage water build-up in high risk areas.

- Secure outdoor equipment and loose objects
- Ensure adequate amount of kerosene for lanterns.
- Check batteries, radios, flashlights and hurricane lamps

ACTION AT PHASE 2 - (24 hours before ETA)

At this stage, preparedness activities should be intensified with the sole purpose of completing all plans in time for the visitors and employees (who are not required) to be sent home and the locations secured for minimum damage.

The steps to be taken include:

- Continue to listen to the advisory issued by the MET Office and your Head Office (who should be updating the tracking map).
- Review the communications system
- Employees in each location to begin battening down operations.
- All electrical and office equipment, documents/files to be placed into plastic bags and stored in safe areas.

ACTION AT PHASE 3 - (12 hours before ETA)

- Brief the employees on the activities to be undertaken for the remaining period and for reporting back to work after the hurricane has passed.
- Carry out final battening of windows, exists, storage of equipment, records, storage of drinking water and filling of empty containers.

- Carry out final checks on the premises at each location, ensuring proper document security, etc.
- Turn off all water mains, gas lines (secure Gas Cylinders) and circuit breakers close to the supply source.
- All employees (including Management Team) to leave the facility locations for home.
- Ensure proper arrangements are in place for the security personnel that will be remaining at the facility.

PHASE 4. - (The Blow)

- Wherever you are, stay indoors. Do not go outside unless it is absolutely necessary.
- Do not open doors/windows facing the full force of the wind. Doors/windows opposite the wind may be opened if this is essential.
- Listen to the radio for information and updates.
- Wait for official word that it is safe to leave the security of where you are.

PHASE 5 - (The Recovery)

Once the All-Clear signal has been given, all employees must return to the facility sites as soon as possible. Persons will be designated to carry out preliminary damage assessment. No clean up activities are to be done before the damage assessment is carried out.

1. DAMAGE ASSESSMENT: (take Pictures, Note date/time/location etc)

- Organise a survey team and increase security (if necessary)
- Report any broken mains and fallen utility wires. Check for gas and fuel leaks.
- Inspect all buildings, trails, office equipment, cabins etc., for damage.
- Evaluate and note damages, prepare further proof with photographs and other valuable aids.

2. CLEAN UP EXERCISE:

- Begin essential repairs if the insurance company does not require a first hand view of the overall damages.
- Document all repairs in a systematic manner showing – time, labour, material, job number and location.
- Start clean up activities as soon as possible.
- All hurricane-related expenses are to be kept in a separate file/ledger so as to facilitate easier and more accurate accountability.

DUTIES OF THE MANAGING DIRECTOR

- Ensure that prior to the start of the Hurricane Season; the LPG Facility is prepared for hurricanes.
- Review and update the Hurricane Plan.

- In the event of a Hurricane Threat, the Managing Director will, in consultation with ODPEM and MET Office issue the warning phases. Bearing in mind the time available and the action to be taken at each phase of the warning system.

Note: Depending on the actual ETA (day/night) he/she may vary the issue of the different phases to permit the completion of preparation in working hours whenever possible.

- Supervise the Recovery Phase until normality has been restored in all the locations.

ANNEX “E”

EARTHQUAKE

INTRODUCTION:

Earthquakes give no prior warning and the effects can be catastrophic and devastating. While nothing can be done to stop an earthquake from occurring, mitigation of the disaster effects can be achieved through prior preparation and constant awareness of the precautionary measures and response procedures to be followed during and after the event.

ACTIONS DURING AN EARTHQUAKE: (take Pictures of damages and document)

- Keep calm, do not panic
- Get under a sturdy table, desk, bed or supported doorway.
- Stay away from glass windows/doors that might shatter.
- Watch out for cabinets, book-cases and furniture that might FALL.
- Do not light matches or turn on lights.
- Watch out for falling ceiling tiles, light poles, falling rocks, change in water levels, broken mains, land slides, lighting fixtures, uneven road surfaces, etc.
- Turn off any electric or gas appliances
- Do not leave your shelter until you are told to do so or when you consider it safe to do so.
- Be prepared for after shocks.
- If fire appears, activate the fire alarm.
- After evacuating the building, proceed directly to the designated assembly area for head count.
- If anyone is missing; a check of the building must be made by the appropriate authority.
- Do not return to the building until the “all clear” is given.

ANNEX ‘F’

FIRE

INTRODUCTION:

Fires are mainly caused as a result of factors such as

- Sabotage or carelessness on the part of individuals
- Electrical short circuit
- Ignition from lightening or vehicles
- Spill or leakage from the transfer of LPG

One should therefore, try to eliminate these causes as far as possible.

FIRE ALARM:

The sounding of the Fire Alarm is the ringing of the bell, which is located in strategic areas of the facility.

The function of the Alarm signal is to warn everyone that a state of emergency has arisen and that they should evacuate the building immediately. The sounding of the Fire Alarm should be taken for the signal for complete **EVACUATION** of the building.

ACTIONS IN CASE OF FIRE:

- Sound the Fire Alarm/shout “**Fire, Fire!**”.
- Call the Fire Brigade immediately by the nearest available telephone.
- Evacuate the buildings by safe routes.
- Assemble at the pre-designated emergency assembly areas upwind of the Fire
- Head count is taken by the senior person on the ground to ensure that all is accounted for.
- Do not return into the building/area until the ‘All-Clear’ is given.
- Stay out of the way of the fire fighters.

- Render assistance and First- Aid as required.
- Only if the fire is small (and can be contained until the Fire Fighters arrive) should any attempt be made to use the Fire extinguisher/water/sand/bush to put out the fire.
- Reporting/recording of all fires should be done.

LPG FACILITY – RIO BUENO, TRELAWNEY, JAMAICA

PROPOSED OUTLINE

HAZARDOUS MATERIAL CONTINGENCY PLAN

1.0 INTRODUCTION

1.1 Purpose

This contingency plan defines the framework for preparing for and responding to emergencies involving potential environmental, health and safety incidents at the LPG Facility in Rio Bueno.

1.2 Scope

This plan applies to all emergency preparedness and response activities at the port reception facility, pipeline to storage tanks and the automated filling system into bulk trucks, trailers and cylinders, as well as during delivery of products.

2.0 INCIDENT INFORMATION SUMMARY - Recorded report

3.0 DEFINITIONS – Hazmat, OSC. etc

4.0 CLASSIFICATION – Identification of Material(s) Involved, Warning Labels & Placards

5.0 TYPE OF HAZARDOUS MATERIAL (HAZMAT) – Hazard & Risk Assessment, List, (Water Reactive?)

6.0 ORGANIZATION & RESPONSIBILITIES – Site Management & Control (ICS), Emergency Operation Centre

7.0 RESPONSE FUNCTION – Coordination of Resources & Information, National Response Organizations

8.0 COMMUNICATIONS- Internal, External, Media

9.0 RESOURCE LIST – Evaluation of Protective Clothing & Equipment

10.0 SAFETY, HEALTH AND MEDICAL

11.0 CONTAINMENT & CLEAN-UP – Control of Hazmat Release(s)

- 12.0 DECONTAMINATION – Site & Personnel
- 13.0 TERMINATION – How clean is Clean, Debrief Response
- 14.0 DOCUMENTATION & INVESTIGATION – Training & Upgrading Plan