

EMERGENCY RESPONSE PLAN

Diesel Storage Facility at the Coral Springs Housing Development Site

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Definitions

The following definitions are as proposed by the Office of the United Nations Disaster Relief Coordinator (OCHA, formerly known as UNDRO) and the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the United States Environmental Protection Agency (USEPA):

- **Emergency:** is any unplanned event that can cause death or significant injuries to faculty, staff, or the public, or that can shut down business, disrupt operations, cause physical or environmental damage, or can threaten an institution's financial standing or public image.
- **Disaster:** may be defined as an event or occurrence—usually sudden and unexpected—that intensely alters the beings, objects and localities under its influence. It results in loss of life and health in the local population, causes severe environmental damage and the destruction or loss of material goods resulting in a dramatic disruption of normal patterns of life (Pan American Health Organization).
- **Hazard:** is defined as the probability that a potentially disastrous event will occur during a given time period in a given place.
- **Vulnerability:** is the level of loss that an element or group of elements—people, structures, goods, services, economic or social capital—that are exposed to risk would experience as a result of the probable occurrence of a disastrous event. Vulnerability is expressed on a scale from 0 (no damage) to 1 (total loss).
- **Action Plans:** specific plans designed to be used during the response to a threat or incident. Action plans should be easy to use and contain forms, flow charts, and simple instructions to support staff in the field or decision officials during management of a crisis.
- **Incident Command System:** a standardized on-scene emergency management concept specifically designed to allow its user(s) to adopt an integrated organizational structure equal to the complexity and demands of single or multiple incidents, without being hindered by jurisdictional boundaries.
- **Personal Protective Equipment (PPE):** equipment and supplies designed to protect employees from serious injuries or illnesses resulting from contact with chemical, radiological, biological, or other hazards. PPE includes face shields, safety glasses, goggles, laboratory coats, gloves, and respirators.
- **Vulnerability Assessment (VA):** a systematic process for evaluating the susceptibility of critical facilities to potential threats and identifying corrective actions that can reduce or mitigate the risk of serious consequences associated with these threats.

1.0 INTRODUCTION

This document outlines the elements and procedures of the Emergency Response Plan (ERP) of the proposed Diesel Storage Facility at Coral Springs Development in New Falmouth - Trelawny, Jamaica (Figure 1.0). The Emergency Response Plan is put into effect whenever a crisis, man-made or natural, disrupts operations, threatens life, creates major damage, and occurs within the petroleum storage area and its environs including the Coral Springs Estate. The Plan conforms to the guidelines of the National Environment and Planning Agency and includes the Legislative Authority, the command structure and the established method of operations as stipulated in Jamaica's National Disaster Plan.

1.1 Purpose and Scope

The primary purpose of the plan is to provide clear guidance to the management and staff of the diesel storage facility (located within the Batching Plant facility) at the Coral Springs Development on the basic infrastructure and operating procedures required to prepare for, respond to, mitigate and recover from emergency situations. The ERP will provide guidelines for timely, coordinated and integrated response.

The plan is designed to be used by sections or in its entirety. Section 1 introduces the purpose and scope of the ERP as well as the location and functioning of the Diesel Storage Facility and the legislative framework for the ERP. Section 2 details the phases of an emergency from introduction and implementation to recovery and describes the necessary steps to be taken to minimize damage. Section three outlines the various action plans for the hazards associated with the operation of an Above Ground Storage Tank (AST) for diesel.

1.2 The Diesel Storage Facility

Gore Developments Ltd. has applied for a permit to install an Above Ground Storage Tank (AST) for diesel storage at the Coral Springs Development Batching Plant in Trelawny. The batching plant is a manufacturing plant where the ingredients used to produce concrete are mixed before being transported to a construction site ready to be poured.

1.2.1 Physical and Operational Setting of the AST facility at Concrete Batching Plant Facility

The section of the property proposed for development of the Batching Plant is the Football Field site located east of the sinkhole. The Batching Plant site will be facilitated with all the essential infrastructural support such as electricity, potable water, sewer connections and wastewater facilities.

The AST facility is located at the north eastern section of the Batching Plant away from the batching equipment, aggregate and site office. The proposed AST will contain diesel fuel which will be supplied and installed by Cool Petroleum. Only one tank will be erected which will have a steel casing and will be located as an Above-ground Storage Tank (A.S.T.) compact with 3000 gallons of diesel fuel. The bund wall will be 3' 0" from ground level and the tank will be sited on a 6" thick well compacted marl and 6" thick C/C slab to support a pressure of 3000 psi. The slab detail includes a 6" block wall rendered, with each pocket filled with a 1:2:3 C/C mix. This facility will be used to

supply diesel fuel for the concrete mixer trucks which will service the batching plant and a fuel filling station will be set-up for this.

1.3 Legislative and Regulatory Environment

The National Environment and Planning Agency (NEPA) is the regulatory agency which administers the Natural Resources Conservation Authority Act of 1991. In January 1997 the Natural Resources Conservation Authority established its Permit and License system. The construction and operation of a batching plant fall within the prescribed categories of developments that require an environmental permit to operate. The permit granted to GDL has specific conditions one of which is the development and maintenance of an emergency response plan for the facility.

NEPA and the Jamaica Fire Brigade (JFB) have the responsibility for investigating pollution incidents, sampling, analyzing and monitoring. The National Damage Assessment Team along with NEPA will also assess the actual or potential impact of the damage on the surroundings and will:

- ✚ Provide policies and regulations relating to the use of chemical treating agents.
- ✚ Develop maps of ecologically sensitive areas for the purpose of establishing priorities for cleanup (*environmental sensitivity maps*)
- ✚ Provide surveillance support for monitoring of the pollutant
- ✚ NEPA along with the Ministry of Health will recommend and arrange sites *or options* for the disposal of contaminated materials.
- ✚ Recommend clean up methodology related to the sensitivity of the area.
- ✚ Authorize and has the responsibility to approve the use of chemical agents on aquatic spill.
- ✚ Update the Office of the Prime Minister on all disaster planning and mitigation activities.
- ✚ Establish, maintain, monitor and enforce adequate safety standards in industrial plants. Monitor the maintenance oil spill emergency storage facilities and emergency supplies.

2.0 EMERGENCY RESPONSE PLAN

2.1 Systems Specific Information

During emergency basic technical information will be made available for the fuel storage personnel, first responders, repair contractors, the media, and others. The information will be clearly documented and readily accessible so that staff can find and distribute them quickly to those involved in responding to the event.

2.2 System Names, Owners and Administrative Contact Information

The GDL project management team will appoint a Safety, Health and Environment (SHE) Committee to carry out the tasks described in the plan. This committee will serve as the overall coordinating body for all emergencies and will be responsible for managing and implementing emergency preparedness mechanisms at all stages of a disaster. A member of the committee will be appointed Emergency Operations Coordinator (EOC) and will serve as the main contact person for the facility in an emergency. The EOC is responsible for making decisions and following the steps described in this emergency response plan. In the event of an emergency occurring within or affecting the AST and surrounding areas, the primary contact will serve as the EOC. If the primary contact is unable to fulfill the EOC duties, the secondary contact will take on this role. The contact information for these persons will be provided as indicated in the table below:

Name of EOC Lead	Israel Pinchas	Name of Alternate EOC Lead	Asaf Keren
Work Telephone No.		Work Telephone No.	
Home Telephone No.		Home Telephone No.	
Cell Phone No.		Cell Phone No.	
Radio Call No.		Radio Call No.	

2.3 Roles and Responsibilities

The first project of the SHE committee will be to designate responsibilities for action before, during and after an emergency incident – an Incident Command System. The other general responsibilities of the committee will include the following:

- ✚ To designate and clearly demarcate emergency exits.
- ✚ To update the emergency contact list every 3 months.
- ✚ To ensure that ALL members of staff are familiar with the evacuation plan by conducting regular simulation exercises.
- ✚ To ensure that all equipment and buildings are fully insured against all natural disasters.
- ✚ To arrange off-site emergency shelters and assembly points in the case of unpredictable disasters. These arrangements should be confirmed with memoranda of understanding from each establishment.
- ✚ To advise staff and suppliers of the status and operating capabilities at all stages of an emergency.
- ✚ To establish procedures for communication with all staff and suppliers.
- ✚ To ensure that the equipment and physical structure meet occupational health and safety standards.
- ✚ To procure a full complement of equipment to control emergency situations such as:
 - Protective clothing against harmful chemicals

- Fire extinguishers
- A fully equipped decontamination unit
- First aid kit

2.4 The Incident Command System

The Incident Command System (ICS) is the model tool that will be used for command, control, and coordination of an emergency response at the AST facility and will provide a means to coordinate the efforts of first responders as they work toward the common goal of stabilizing a major event and protecting life, property, and the environment. The ICS will use a simple yet well-defined command structure in order to specify roles and responsibilities for responding to emergencies. The main contact person and decision-maker is the Incident Commander. In the case of this facility EOC will be designated the role of Incident Commander (IC), unless the incident is of such significance that local or national officials take over the command.

2.4.1 Roles of Key Personnel in the Incident Command System

The Project Manager will design an Emergency Incident Command Structure to coordinate essential services and assign basic responsibilities during a disaster. The system will be flexible and tiered allowing different tiers to be activated based on the nature of the emergency. The following presents an outline of this structure:

- **Incident Commander (IC):** The incident commander will be the EOC as appointed by the SHE Committee and responsible for management of incidents that may affect the overall batching plant facility (office, batching plant, diesel storage area, tank fill area, aggregate storage area and the effluent discharge area); coordinating all emergency response activities among the staff and between response agencies.
- **GDL Project Manager:** Develops and presents an action plan for sustaining operations given the disaster scenario at 4, 8, 24, and 48 hours from the time of the incident. Tracks expenditures for cost recovery and to ensure that funds can be allocated for special purchases essential to disaster response.
- **Safety Officer:** The general safety of plant responders will be the responsibility of the safety officer.
- **Liaison Officer:** Establishes contact and works with external agencies responding to the emergency.
- **Company Secretary/ Public Relations Manager:** Provides official information to the media and will disseminate public information.
- **Security Officer:** Organizes and enforces scene/facility security by restricting building and grounds access and directing traffic.
- **Batching Plant Staff:** During an emergency situation all staff are expected to cease operation and comply with response actions

2.5 Communication Procedures

Appropriate and timely communication is vital to effective emergency response. An effective communication based on hierarchical notification for reporting threat warnings and other critical information to appropriate individuals at each stage of the response will be implemented at the facility.

2.5.1 Internal Notification

In general, communications during an emergency response will proceed along the chain of command of the ICS. The employee who discovers an emergency situation that may affect the operation of the facility will report it to his/her supervisor immediately. The supervisor will notify the Incident Commander. If appropriate after consultation with key personnel, the IC will initiate the emergency response plan and notify the paging operator to issue an overhead or group page and instructions. Essential off-duty staff will also be notified if necessary.

Communication channels such as telephone (land and cellular lines), pagers and 2-way radios whenever possible will be used to communicate vital information during an emergency. If established communication channels are unavailable, the Incident Commander will establish a runner/courier system to communicate critical information throughout the facility. The critical internal contact list is as follows (subject to change):

Name	Title/Role	Contact Number/s
Israel Pinchas	Emergency Operations Coordinator	469-3124
Asaf Keren	Alternate Emergency Operations Coordinator 1	413-3834
Lee Gore	Alternate Emergency Operations Coordinator 2	382-6974
Glendoph Wright	Personal Equipment Supply Officer	344-3593
Vernon Thelwell	General Equipment Supply Officer	413-4006/337-6328
Lee Gore	Safety Officer 1	382-6974
Asaf Keren	Safety Officer 2	413-3834
Asaf Keren	Security Officer	413-3834
Veniese McIntosh	Secretary/ Admin	
Ruthven Ottey	Planning and Financial Chief	875-1797
Lee Gore	Site Environmental Officer	382-6974
	AST Facility Operator	

2.5.2 External Notification Procedure

It is the responsibility of the Project Manager to notify the responsible Government of Jamaica authorities. Once the internal response system has been initiated, the public relations manager will establish and maintain necessary communication with the external agencies. The Office of Disaster Preparedness and Emergency Management (ODPEM) have responsibility for implementation of the National Disaster Plan and overall coordination of the response activities and countermeasures in the event of an emergency. An external contact list such as the following lists all the appropriate first responders:

Responsible Persons/Agency	Name of Contact	Contact Number
Falmouth Fire Brigade		
Office of Disaster Preparedness (ODPEM)		925-5111-4
Jamaica Defence Force-Discovery Bay		
National Meteorological Office		9520181
Environmental Health and Safety Unit		
Natural Resources Conservation Authority (NRCA)		754-7540
Jamaica Constabulary Force – Falmouth		
Elected Official		

2.6 Personnel Safety

Protecting the health and safety of all the all persons involved with the AST facility is a key priority to the developers. This section briefly lists the basic safety information and protocols that will be followed by all persons working in or using the AST facility. Some of these are indicated below:

- Make sure fire extinguishers are the proper type and located in strategic places. Keep them in good working order and pressurized. Operators must be trained with their proper use.
- No Smoking at AST and truck fuel filling facilities. Signs stating this rule will be posted
- No open flames at AST facility
- Storing of non-essential items and material such as empty gas cans, jerry jugs, rags and other items that are can start or spread fires at the facility will not be allowed

- Material Safety Data Sheets (MSDS) for the diesel product stored at the facility will be kept at the site
- Safety equipment such as tank overfill protection and warning devices, emergency shut off switches and shut off valves will be kept in good working order so that they may be activated if necessary during an emergency
- Unauthorized people will not be permitted near the AST

2.7 Evacuation Procedures

Evacuation procedures and escape route assignments will be developed so employees understand who is authorized to order an evacuation; under what conditions an evacuation is necessary, how to evacuate, and what routes to take. Decisions regarding evacuations are incident specific and will be made at the time of the incident. If the decision is made to evacuate then specific guidelines such as the ones shown below will be followed:

- Relevant facility personnel will be notified of the need to evacuate using the public address or alarm system or another means of communication
- All evacuations will occur when a fire alarm sounds continuously and/or when notified by the AST facility manager or the EOC.
- Persons will leave building or shut down machinery/equipment immediately if an alarm sounds or if directed by authorized personnel.
- Facility evacuation will follow pre-designated evacuation routes upwind from AST area, fuel storage area and the wider plant grounds and maps will be produced to clearly show the routes.
- The evacuation routes will be posted at the entrance to all buildings and at employee assembly points.
- Once an evacuation is ordered each employee will report to the pre-designated assembly areas for each sector of the batching plant, as shown on the evacuation plans, to be accounted for by their supervisor or other designated personnel.
- Supervisors will be responsible to notify emergency personnel of persons with disabilities and or who have difficulty evacuating.
- Once outside, evacuees will be advised to move to a distance of at least 500 ft. from the affected AST and fuel filling areas of the plant.
- Also note that it will be standard procedure for staff to keep streets, walkways and parking areas clear for emergency vehicles and personnel.
- Persons will be advised not to return to an evacuated building or area unless directed to do so by authorized personnel.

2.8 Emergency Equipment List

The emergency equipment lists below identifies some of the emergency equipment and materials required to respond to various emergencies at the AST facility. Additional equipment will be added by the EOC as necessary.

Spills response equipment checklist

Item	No. Needed	Have	Order	Comments
Transfer Pump				
Hand Held Radio (spare batteries and charger)				
Shovels (Non-sparking, aluminum or brass)				
Picks				
First Aid Kit				
Brooms				
Safety Glasses or Face Shield				
Hard Hats				
Rope				
Rubber Boots				
Tank or bladder for holding recovered product				
Rain Gear				
Plastic Buckets				

Spills response materials checklist

Item	No. Needed	Have	Order	Comments
Sorbent Pads				

Item	No. Needed	Have	Order	Comments
Sorbent Boom				
Skirted Boom				
Overpack Drums, 85 gallons				
Garbage Bags (6 mil.)				
Neoprene Gloves				
Warm Gloves				
Duct Tape				
Disposable Suits (ie. Kaplar)				
Masks				
Plugs				
Pans for cleaning				
Scrub brushes				

2.9 Damage Assessment

The damage assessment will be used to determine the extent of the damage, estimate repairs or replacement costs, and identify the resources needed to return the facility to full operation. The Emergency Operations Coordinator will complete the following in a damage assessment:

- Conduct and analysis of the extent of damage to the system or facility
- Estimate the repairs required to restore the facility; this estimate will consider supplies, equipment, rental of specialized equipment and additional staffing needs
- Provide this list of repairs to the project manager so that a cost estimate can be done to conduct the repairs needed.

2.10 Recovery Activities

The following activities will be directed by the Recovery Manager and team following an incident emergency situation at the AST facility:

- Notify all appropriate regulatory agencies that recovery is underway
- Installing of warning signs, barriers and shields as needed
- Take measures to protect workers and the public from hazardous exposures
- Begin repair activities
- Restore all telecommunications, data processing and similar services to full operation
- Execute agreements with suppliers to meet service and supply needs
- Address need for handling and disposing of any hazardous waste generated during response
- Return to normal organizational structure when feasible
- Debrief staff to enhance response and recovery efforts in the future by identifying lessons learned and improving action plans

2.11 Staff Training

Employees will be educated about the types of emergencies that may occur and trained in the proper course of action. All employees will be trained to understand the function and elements the various emergency action plans of this ERP, including types of potential emergencies, individual roles and responsibilities, reporting procedures, alarm systems, evacuation plans, location and use of common emergency equipment and emergency shutdown procedures. Effective plans often call for retraining of employees annually and include drills in which employees can practice evacuating their workplace and gathering in the assembly area.

2.12 Plan Review, Coordination and Update

Each emergency action plan will be reviewed carefully with employees and posted in an area where all employees will have access to it. The written plans will be available to the employees and kept at the workplace.

Practice evacuation drills will be conducted at least twice per year to allow employees to become familiar with the emergency procedures, their evacuation routes, and assembly locations, so that if an actual emergency should occur, they will respond properly. Outside resources, such as fire and police departments will be included in these drills when possible. After each drill management and employees will evaluate the effectiveness of the drill and identify the strengths and weaknesses of your plan and work to improve it.

Operations and personnel are likely to change over the projected three year operation of the facility and an outdated plan will be of little use in an emergency. The ERP will be reviewed at least annually and updated whenever an employee's emergency actions or responsibilities change, or when there is a change in the layout or design of the

facility, new equipment, hazardous materials, or processes are introduced that affect evacuation routes, or introduce new hazards that require special actions.

2.13 Vulnerability Assessment

Hazards encountered in petroleum and petrochemical storage tanks include:

- Leaks and spills
- fire or explosion
- asphyxiation
- toxicity
- entrapment
- falls
- physical and chemical hazards including steam, heat, noise and electrical shock

These hazards can be a result of the presence of hazardous gases, vapors, fumes, cleaning chemicals, dusts, improper or insufficient lockout-tag out, or excessive heat or cold. Additionally, the creation of an oxygen-deficient or oxygen-rich atmosphere may cause serious injury or death.

3.0 ACTION PLANS

The Action Plans (APs) or Response Guidelines, are tailored ERPs that address specific major events. In this instance they will describe response actions to take for events that are likely to affect the Diesel AST facility based on the specific vulnerabilities identified in the vulnerability assessment.

The action plans are accessible and can be taken to the field by the Utility Emergency Response Manager or another emergency responder. Each AP includes the following basic information:

- Any special notification requirements
- Special response steps to be taken upon ERP activation
- Recovery actions to bring the diesel storage facility back into operation.

3.1 Spills Response Action Plan

Frequent reviews of the facility will help in preparing for any possible spills that may occur. The size, location and type of spill (i.e. to land or water) that could occur at the facility will determine response materials and equipment that the operator will have on hand as well as spill response training necessary to respond to a spill.

Spill response materials and equipment will be placed in secure, yet readily accessible locations near potential spill areas.

Spill Type	Preparedness Materials and Measures
Spills to land	sorbent pads/boom, picks and shovels
Spills to water	skirted boom and skimmers
Spills during fuel handling	catchment basins, boom and sorbents
Spills from leaks in system	sorbent pad, containment basins, repair and patch material

Spill Response Equipment and Material Checklists will contain:

- Lists of basic equipment and materials that are kept readily available to respond to spills
- All employees will know the location and how to use spill response equipment and materials.

Response Mechanism for Spills

When the operator or another member of staff determines/recognizes that there is a spill at the facility, immediate action will be taken. As every spill is different, response by the operator or other authorized person will be guided by internal capabilities and limitations within the facility.

Initial Defensive Actions

The person who first notices a spill will report to the IC/EOC or AST Operator who will survey the incident from a safe distance. Using senses of sight, sound and smell, they will take note of:

- Source of release (tank, pipe, valve, drum, etc.)
- Material spilled, look at labels and markings
- Occupied buildings that may be threatened
- Public areas and environmentally sensitive areas that may be threatened.

As human lives and safety are most important in this situation the AST Operator or other relevant person will call for help. Doing so may also reduce the impact from the spill. The relevant persons/agencies to call are as follows:

- Facility manager

- Local fire department
- Local responders
- Local medical personnel
- Local law enforcement

The operator/IC or Project Manager and other designated responders will then:

- Collect hazard information on the product spilled (refer to Materials Safety Data Sheets received from the manufacturer/supplier)
- Predict the likely behavior of spilled material as well as the source container (flow direction, etc.)
- Estimate the extent of the spill and potential for harm
- Keep non-emergency and unauthorized personnel away from facility and spill area
- Evacuate areas downwind and stay upwind from spill – fumes can cause health problems
- Control the scene and ribbon off spill area to keep staff and others away from the spill

Within the capabilities of available personnel, personal protection equipment and spill control equipment the IC/EOC or AST Operator will:

- Identify response objectives based on initial analysis
- Contact authorities for additional response equipment if deemed necessary
- Conduct a safety briefing with responders
- Decide when to stay away from the area of exposure (as explosion hazard, etc. are likely from a spill)

The responders will protect themselves by:

- Wearing appropriate personal protection gear such as:
 - Hardhats
 - Rubber or safety-toed boots
 - Respirators
 - Disposable suits or Rain Gears
 - Eye Protection
 - Neoprene Gloves
- Being cautious of symptoms of heat and cold stress.
- Preparing for decontamination.

Responding

The next step will be to verify the spill source so as to implement a clean-up and recovery response. The AST will be checked for:

- Evidence of spilled product from overflow or heat expansion.
- Rupture, leaks, welds, missing bolts or rivets, or any other damage or flaws to tank shell seams
- Corrosion, leaking, welds or any other damage to shell/bottom

The Piping associated with the AST will be checked:

- to see if any pipes are cracked or broken
- to see if valves are in the correct position - open or closed
- for the presence of broken or leaky joints

Also the responders will look around to see if spilled oil could be coming from another source, such as a vehicle parked on the premises, or drums stored nearby AST facility.

Recovery and Clean-up

The Spilled Product will be recovered and cleaned-up as completely as is possible to reduce environmental damage.

After clean-up:

- The recovered product will be put into tanks, drums or bladders
- Report the spill to the ODPEM and other relevant agency

Controlling Spill

Once the source of the spill is identified it will be contained immediately as the quicker the spill is contained, the less the potential for human danger and impact to the environment. It is integral to:

- Stop transferring fuel immediately if spill occurs during transfer
- Know location of all emergency shut off equipment (electrical and mechanical)
- Close valves upstream of leak to stop the flow of product
- Place buckets or basins under leak from pipe or valve
- Apply temporary patch over leaky pipe or tank
- transfer remaining fuel if spill is from a damaged tank, to another tank
- Use spill response tool kit – shovels, absorbent pads, etc.
- Follow deployment strategies in Spill Response Plan
- Use dirt and mud to form a dike around spilled products
- Dig a ditch to divert product from flowing into the wetland

During the cleanup phase the responders will pay particular attention to sensitive areas such as:

- Drinking water sources
- Residential areas
- Commercial areas
- Wildlife habitat

Spill Response Checklist

The following is the spill response checklist (Modified from US Environmental Protection Agency) (subject to modifications as deemed by the Operator and or Manager) that will be used for the AST facility at Coral Springs:

<p>SURVEY INCIDENT</p> <ul style="list-style-type: none"> o Identify release source & Material spilled o Threatened building/public and sensitive areas 	<p>FINDINGS</p>
<p>SAFETY FIRST – GET HELP</p> <ul style="list-style-type: none"> o Facility Owner or Manager o Local Fire Department and Law Enforcement o Local Responders o Local Medical Personnel 	
<p>ANALYSE THE INCIDENT</p> <ul style="list-style-type: none"> o Review MSDS Sheet o Predict spill behavior o Estimate extent of spill 	
<p>PROTECT THE PUBLIC</p> <ul style="list-style-type: none"> o Authorized personnel only/Ribbon off area o Evacuate areas downwind & Stay upwind 	

o Know when to stay away	
PLAN A RESPONSE o Identify response objectives o Get additional response material o Conduct safety briefing	
PUT ON PERSONAL PROTECTION GEAR o Disposable suit or rain gear o Hardhat/Eye protection o Neoprene Gloves/Rubber or safety-toed boots	
VERIFY SPILL SOURCE o Tanks o Pipes o Other sources	
CONTROL THE SPILL o Stop the transfer and close valves upstream o Place catch bucket or basin under leak o Apply temporary patch	
CONTAIN THE SPILL o Use response tool kit following deployment strategies o Pay attention to sensitive areas	
RECOVER, CLEAN AND REPORT o Capture and recover product before it hits any	

water o Clean-up product o Call the ODPEM and report spill	
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3.2 Action Plan for Exposure from Diesel Fumes

- Once it has been realized that there is an exposure to the fumes from the gas it is important that immediate medical assistance is sought for individuals exposed.
- Before medical aid arrives the exposed person/s will evacuate the contaminated area immediately and take deep breaths of fresh air.
- Persons who experience symptoms such as wheezing, coughing, shortness of breath or burning in the mouth, throat or chest, will be immediately be taken to a physician and/ the Falmouth Medical Centre.

Some basic First Aid responses for exposure to diesel and its fumes include:

- Skin contact with fuel - remove affected clothing and wash skin
- Eye contact with fuel - flush with water; seek immediate medical attention
- Ingestion of fuel- do not induce vomiting; seek immediate medical attention

3.3 Fire Plan

Once a fire is identified in or near the AST facility the fire alarm will be sounded and every employee of the entire Batching Plant will evacuate to a designated area within at least a 5 mile radius in the direction upwind from the AST.

Once a fire occurs, there is a chance of an explosion following and as such the Fire Brigade of Falmouth will be called immediately by the Incident Commander or other relevant personnel to respond to the fire.

Fire Extinguishers:

The facility should have the appropriate number of fire extinguishers approved by the Jamaica Fire Brigade. The EOC should ensure that the extinguishers are serviced in accordance with their required schedule and that they suit the needs of the area in which they are present. ALL members of staff should be given a demonstration on how to use the extinguishers and they must be placed in areas easily accessible by the staff and at heights at which they can be easily operated.

Before Fire

Task	Responsibility
<ul style="list-style-type: none">✓ Ensure that all the fire extinguishers have been serviced and are ready to use at any time.✓ Make sure that evacuation routes are always kept clear for quick exits.✓ Clearly mark evacuation routes and assembly areas.✓ Ensure that the fire alarms are functioning and can be heard at all points of the complex.✓ Conduct fire drills on a regular basis to keep staff alert to threat and the proper response.	Safety Officer

3.4 Earthquake

Jamaica lies in a region which is seismically active, meaning it is susceptible to earthquakes. Compared to other active zones in the world, Jamaica has few earthquakes and they are usually of low intensities. However, they may range in intensity from slight tremors to great shocks, and may last from a few seconds to as long as five minutes. Shocks could come in a series over a period of days.

During an earthquake, injury and death to persons are usually caused by falling objects and collapsing buildings. Disruption of landline communications, light and power lines and sewer or water mains can be expected. Earthquakes can also trigger landslides and fires.

In the event of an earthquake, the facility is exposed to threats from its physical structure, unsecured equipment and injury to personnel. The steps outlined below should be followed.

Before an Earthquake

Task	Responsibility
<ul style="list-style-type: none">• Equipment should be firmly bolted down and flexible connections used wherever possible.• Top-heavy furniture and objects should be fastened to the wall and largest and heaviest objects placed on the bottom shelf.• Check that ceilings, overhead lights, etc. are secured to the structure of the building. each building should be assessed for their ability to with stand earthquakes of at least seven (7) on the Richter scale (<i>Appendix 1</i>)	

Safe Areas need to be designated and clearly marked in each area and department. These are areas that are structurally sound and are expected to withstand a powerful tremor.

Keep on hand the following items:

- Flashlights
- Battery-operated radios and batteries
- First-Aid Kit
- Fire extinguishers of appropriate grades
- Adjustable wrench for turning off gas and water
- Bottles of water
- Telephone numbers and addresses of local authorities: fire, rescue and doctor.

Designate a point for assembly after an earthquake and ensure that it is clearly marked and all staff knows exactly where it is.

Ensure that staff members are aware of the plant's earthquake contingency plan and that they practice earthquake drills regularly (*See Appendix 2 for some hints in planning earthquake drills*).

Safety Officer

During an Earthquake

- All are advised to keep calm, not panic and think about appropriate response.
- If you are inside, stay there. Stand in the designated safety area or in a supported doorway or crouch, under a desk or table away from windows, glass items and equipment which might break or topple.
- Watch out for falling items.
- If outside, stay there. Stay away from buildings, trees, telephone and electric lines, any machinery associated with the batching facility. The AST area should also be avoided in the event of an earthquake.

After an Earthquake

- After an earthquake, staff members will be scared and anxious to find out about their families. It is important that they be kept under control and calm.
- In the event of a serious earthquake, send the staff home until a full damage assessment has been done and any hazards minimized.

3.3 Hurricanes

By virtue of its geographical location, Jamaica is exposed to the threat of hurricanes. "A hurricane is an almost circular storm centre of extremely low pressure into which winds are spiraling with great speed, accompanied by heavy rainfall" (*Strahler, 1954*). The annual hurricane season commences on June 1st and ends on November 30th. It should be noted that this indicates the period of highest probability for storms and does not mean storms will not strike outside these months, though it is rare.

Characteristics of a Hurricane

SEASON:	Commences June 1 and ends November 30, but storms may occur at any time.
SPEED:	Speed of advance of approximately 20-25 km/hr (12 - 15 Knots).
COURSE:	Normally WNW to NW during 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 175 Knots.
SURGE:	Storm Surge may be experienced if hurricane passes close offshore 3 - 10 metres.
WIDTH:	Width of destruction 170 - 250 km.
RAINFALL:	Up to 450 mm in the first two (2) hours.
LULL:	A deceptive lull lasting approximately 30 minutes occurs when the centre (the EYE) of the hurricane passes.

Before the Hurricane

Prior to the start of the hurricane season the Emergency Operations Coordinator and Safety Officer will initiate the following activities:

- Review and update the Hurricane Plan
- Coordinate actions of the SHE committee
- In the event of a hurricane threat, the Facilities Manager will in consultation with ODPEM and the MET Office issue the warning phases communicating the time available and the action to be taken at each phase of the warning system
- Supervise the Recovery phase until normality has been restored in all departments.

The hurricane preparedness phase will be ongoing throughout the year. Full preparation is the key to minimizing loss of life and property, and to ensuring speedy resumption of business.

Tasks	Responsible Personnel
<p><i>Vulnerability Assessment</i></p> <ul style="list-style-type: none"> • Structural assessment of all buildings and facilities at the plant will be instituted. Assessments of each building on the compound will be made with respect to its strength; exposure to wind and safety (roof, windows, doors, walls). • Non-structural elements will be assessed in terms of exposure to damage (industrial & office equipment, etc.). • The assessment reports will be used to determine the most appropriate location within the facility that will serve as the Emergency Operation Centre (if ever needed) and the location of a first aid centre. • The SHE committee members will be informed of all areas designated for various purposes. 	<p>IC & Safety Officer</p>
<p><i>Emergency Supplies</i></p> <p>Funds will be earmarked and allocated for procurement of emergency supplies.</p> <p>Basic first aid supplies in will be kept in storage at the facility.</p>	<p>Planning & Financial Chief Safety Officer</p>
<p><u>Security</u></p> <p>Confirmation of security arrangements in place in the event of a hurricane or tropical storm.</p>	<p>Security Officer</p>
<p><u>Data Management</u></p> <p>Confirmation of the proper protection of all office equipment, records, files and computer back-up data.</p>	<p>Secretary/Administrator</p>

During the Hurricane

Hurricane procedures will be activated when a hurricane enters the Jamaica region. As time is critical in this phase the EOC and Facility Manger will keep tuned to weather information and national emergency procedures. All departments of the plant will play their role from the alert phase through to the actual strike.

The Warning System

The following warnings will be issued prior to a hurricane. Members of staff are required to pay careful attention to these warnings as there are certain procedures to follow after each warning.

Phase 1	-	Hurricane Alert
		- Hurricane entering the region
Phase 2	-	Hurricane Watch
		- Thirty-six hours to landfall
Phase 3	-	Hurricane Warning
		- Twenty-four hours to landfall
		- Emergency Phase - Strike
Phase 4	-	Recovery and Restoration

The Facilities Manager or, in his absence, his Deputy will assess the hurricane threat in consultation with the MET Office and the ODPEM. Critical to this point are the time available and the actions to be taken at each phase of the warning system. The Emergency Committee will be activated if deemed necessary.

Phase 1 (Storm/hurricane entering region)

With the hurricane alert in effect, the activities to be carried out will include the following tasks:

Tasks	Responsible Personnel
<ul style="list-style-type: none"> • Check first aid stores • Place plastic bags (appropriate sizes) near to critical equipment and vital records for easy access • Brief staff and delegate responsibility to various individuals • Ensure that there are no areas that will encourage water build-up • Secure outdoor equipment and loose objects • Check batteries, radios, flashlights and hurricane lamps • Use a hurricane tracking map to monitor the progress of storms 	<p style="text-align: center;">IC & Safety Officer</p>

<ul style="list-style-type: none"> Record information and establish and maintain contact with the ODPEM and other local authorities Hold regularly scheduled briefing with committee Inform employees of the possible threat and of their responsibilities in the shutdown process Remind staff members to prepare their homes and allow them a designated amount of time to do so if necessary 	
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Action at Phase 2 (36 Hours before expected time of arrival)

At this stage, preparedness activities will be intensified. All plans will be completed in time for the staff (not required) to be sent home at least twenty four (24) hours before Phase 4 is predicted.

Tasks	Responsible Personnel
<ul style="list-style-type: none"> SHE committee will meet to discuss priorities for action Advisory issued by the MET Office will be monitored and tracking map updated Communications systems will be reviewed Shut down process of operations will be initiated Staff duty roster will be activated 	IC & Safety Officer

Action at Phase 3 (24 Hours before expected time of arrival)

Tasks	Responsible Personnel
<ul style="list-style-type: none"> Final checks on the premises will be made to ensure proper vehicle security, documentation security, etc. Vital records that are not necessary for usage within the next 24 hours will be secured and locked away All water mains, gas / fuel mains and circuit breakers close to the supply source will be locked off All staff not required to be on hand will be discharged Persons remaining at plant will remove all equipment and personal belongings (placed in a suitcase or water proof bag) to the emergency operations centre 	<p>IC & Safety Officer</p> <p>IRC</p>

Phase 4 (The Blow)

Tasks	Responsible Personnel
<ul style="list-style-type: none">• The personnel on duty are to stay indoors and not go outside unless it is absolutely necessary.• Doors/windows facing the full force of the wind will not be opened. Doors/windows opposite to 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 the EOC.	All Responders

After the Hurricane: Restoration activities

4.0 TERMINATION AND REVIEW PHASE – POST EMERGENCY OR DISASTER

Termination and review actions will include the following:

- Initiate permanent reconstruction of damaged facilities and systems
- Restore operations and services to full pre-event level
- Determine how emergency equipment and consumable materials should be replenished, repaired or replaced
- Identify operational changes that have occurred as a result of repair, restoration or incident inspection
- Prepare a report of the incident detailing the response and recovery actions
- Continue to maintain liaison with relevant agencies such as the ODPEM
- Update training programmes and action plans as needed based on the lessons learned during the emergency response and recovery phases of the event